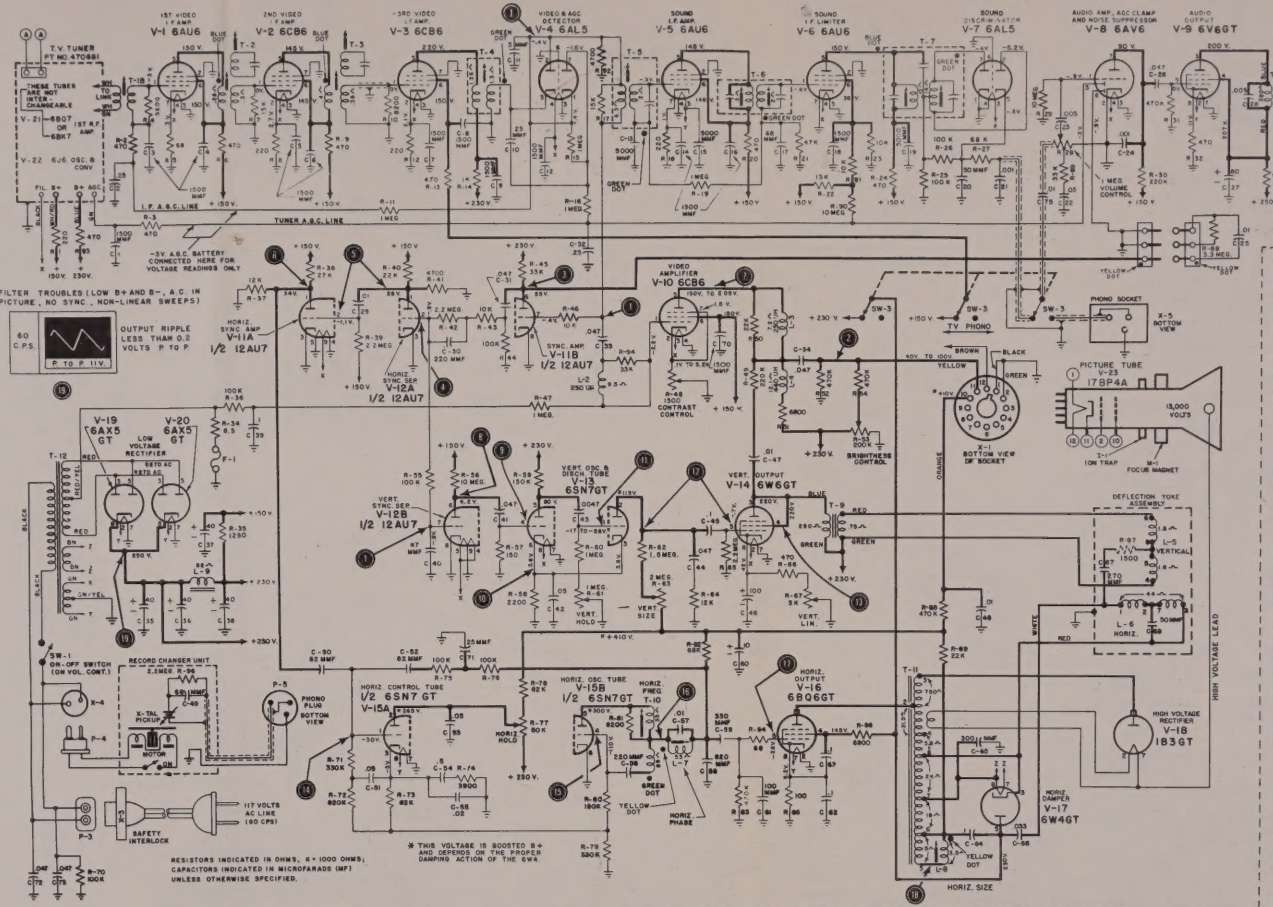
This Set Contains CUMULATIVE INDEX to PHOTOFACT Folders Sets 1 Through 164

TRADE NAME	MODEL	SET AND FOLDER NO.
Admiral	6N25, 6N26, 6N27 (Ch. 5R2)	165-3
Airline	15GSE-2764A	165-4
Altec Lansing	A-333A, A-433A	165-5
Emerson	669D (Ch. 120160-B) Tel. Rec.	165-1A
Fada	20C22, 20T12, 24T10 Tel. Rec.	165-1A
Hallicrafters	17824A, 17906, 17930, 17931, 17932, 17933, 17934, 20823C, 21923, 21928, 21940, 21980 Tel. Rec.	165-6
Motorola	17E11 (Ch. TS-228 & Radio Ch. HS-[illegible]02),17K8A, BA, 17K9A, BA, 17K10[illegible], 17K11A, BA (Ch. TS-228), 17T5A (Ch. TS-214), 17T5C, 17T6BF, F (Ch. TS-228) Tel. Rec.	165-7
Pontiac	984592, 984688	165-8
RCA Victor	45-EY-2 (Ch. RS-138, -A, -H)	165-9
Raytheon	M-1626 (Ch. 16AY212) Tel. Rec.	165-2A
Revere	TR-200 Recorder	165-10
Scott	515	165-11
Silvertone	1176-21, 1186-21 (Ch. 100.208) Tel. Rec.	165-12
Starrett	Ch. 17S1, 18S1 Tel. Rec.	165-2A
Steelman	215	165-13
Stromberg-Carlson	321CD2M, CD20, CF, CM, C2M Tel. Rec.	165-14
Stromberg-Carlson	324 Series Tel. Rec.	165-17A
Sylvania	430L (Ch. 1-254)	165-15
Trad	T-20-E Tel. Rec.	165-17A
V-M	975	165-16

FOR TUNER SCHEMATIC SEE EMERSON MODEL 709A IN FOLDER 161-1A



	30 C.P.S.	7875 C.P.S.
1	P TO P 5.2V.	P TO P 5.2V.
2	P TO P 96 V.	P TO P 96 V.
3	P TO P 52 V.	P TO P 52 V.
4	P TO P 37 V.	P TO P 37 V.
5	P TO P 6 V.	P TO P 6 V.
6	P TO P 14 V.	P TO P 14 V.
7	P TO P 35V.	P TO P 19 V.

VIDEO AND / OR SYNC. TROUBLES (LACK OF CONTRAST, TEAR, OVERLOAD, NO HORIZONTAL OR VERTICAL HOLD, POOR HOLD, JITTER, ETC.)

The Cooperation of the Manufacturer of This Schematic Makes It Possible to Bring You This Service

HORIZONTAL TROUBLES (POOR HOLD, TEAR, NO HORIZONTAL HOLD, NO HIGH VOLTAGE, POOR HORIZONTAL LINEARITY)

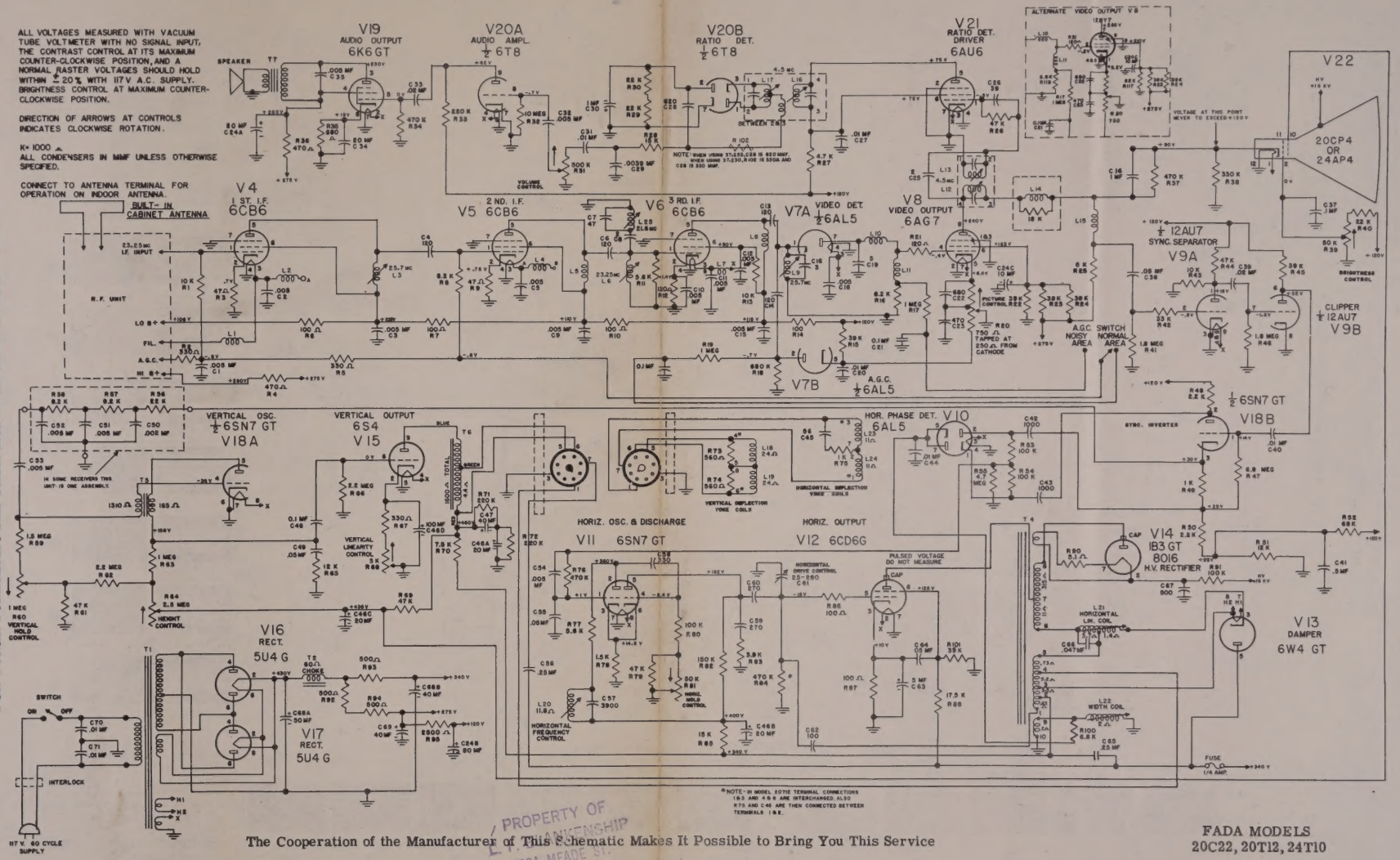
	7875 C.P.S.
18	P TO P 280V.
17	P TO P 96 V.
16	P TO P 125 V.
15	P TO P 300V.
14	P TO P 30 V.

VERTICAL TROUBLES (NO VERTICAL HOLD, NO VERTICAL SIZE, POOR VERTICAL HOLD, VERTICAL JITTER, POOR VERTICAL LINEARITY.)

	30 C.P.S.
13	P TO P 365V.
12	P TO P 70 V.
11	P TO P 70 V.
10	P TO P 9 V.
9	P TO P 3 V.
8	P TO P 2 V.

* FOR THIS MEASUREMENT READJUST VERTICAL HOLD TO STOP PICTURE ROLL.
# HORIZ. GAIN ON SCOPE FULLY OPEN.
P TO P = PEAK TO PEAK

EMERSON MODEL 699D (Ch. 120160-B)


ALL VOLTAGES MEASURED WITH VACUUM TUBE VOLTMETER WITH NO SIGNAL INPUT, THE CONTRAST CONTROL AT ITS MAXIMUM COUNTER-CLOCKWISE POSITION, AND A NORMAL RASTER VOLTAGES SHOULD HOLD WITHIN ± 20 % WITH 117 V A.C. SUPPLY. BRIGHTNESS CONTROL AT MAXIMUM COUNTER-CLOCKWISE POSITION.
DIRECTION OF ARROWS AT CONTROLS INDICATES CLOCKWISE ROTATION.
K = 1000
ALL CONDENSERS IN MMF UNLESS OTHERWISE SPECIFIED.
CONNECT TO ANTENNA TERMINAL FOR OPERATION ON INDOOR ANTENNA.
BUILT-IN CABINET ANTENNA
V19 AUDIO OUTPUT 6K6GT
V20A AUDIO AMPL. ½ 6T8
V20B RATIO DET. ½ 6T8
V21 RATIO DET. DRIVER 6AU6
V22 20CP4 OR 24AP4
V4 1 ST. I.F. 6CB6
V5 2 ND. I.F. 6CB6
V6 3 RD. I.F. 6CB6
V7A VIDEO DET. ½ 6AL5
V8 VIDEO OUTPUT 6AG7
½ 12AU7 SYNC. SEPARATOR V9A
CLIPPER ½ 12AU7 V9B
V7B A.G.C. ½ 6AL5
A.G.C. SWITCH NOISY AREA
NORMAL AREA
VERTICAL OSC. ½ 6SN7 GT V18A
VERTICAL OUTPUT 6S4 V15
HOR. PHASE DET. V10 6AL5
½ 6SN7 GT V18B
HORIZ. OSC. & DISCHARGE V11 6SN7 GT
HORIZ. OUTPUT V12 6CD6G
V14 1B3 GT 8016 H.V. RECTIFIER
V13 DAMPER 6W4 GT
V16 RECT. 5U4 G
V17 RECT. 5U4 G
R.F. UNIT
I.F. INPUT
VERTICAL HOLD CONTROL
HEIGHT CONTROL
VERTICAL LINEARITY CONTROL
HORIZONTAL FREQUENCY CONTROL
HORIZ. HOLD CONTROL
HORIZONTAL DRIVE CONTROL
WIDTH COIL
BRIGHTNESS CONTROL
VOLUME CONTROL
PICTURE CONTROL
SYNC. INVERTER
VERTICAL DEFLECTION YOKE COILS
HORIZONTAL DEFLECTION YOKE COILS
PULSED VOLTAGE DO NOT MEASURE
SWITCH
INTERLOCK
117 V. 60 CYCLE SUPPLY
FUSE 1/4 AMP.
*NOTE-IN MODEL 20T12 TERMINAL CONNECTIONS 1&3 AND 4&5 ARE INTERCHANGED. ALSO R75 AND C48 ARE THEN CONNECTED BETWEEN TERMINALS 1&2.

FOR TUNER SCHEMATIC SEE FADA MODEL R7C15 IN FOLDER 158-3

The Cooperation of the Manufacturer of This Schematic Makes It Possible to Bring You This Service

PROPERTY OF
L. [illegible] SHIPMENSHIP
3924 MEADE ST.
DENVER, COLORADO

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SET 165 FOLDER 1A

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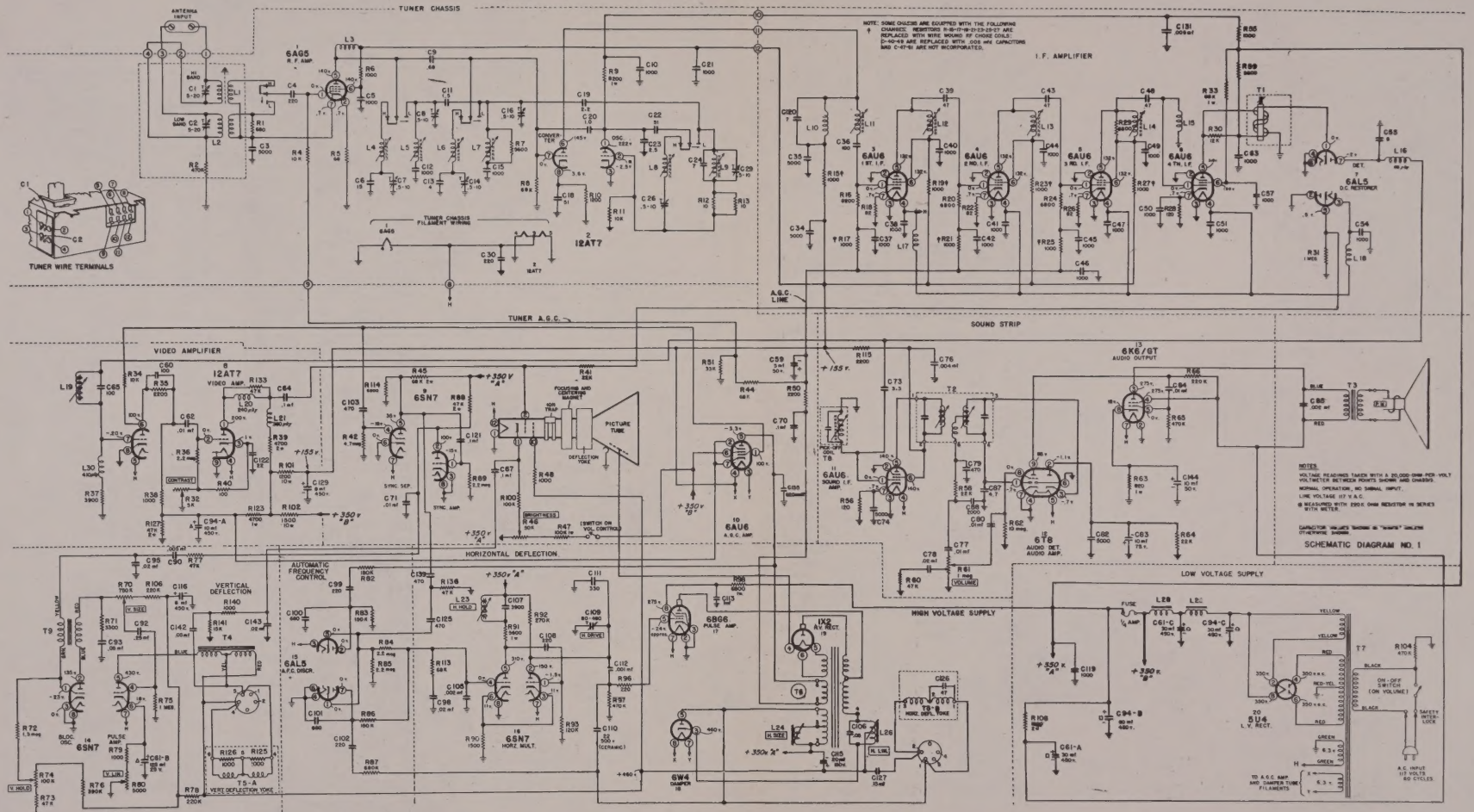

NOTE: Resistor R63 should be 680 ohm, 1 watt, R64 should be 27K ohm, 1/2 watt, R108 should be 2700 ohm, 5 watt, and capacitor C76 should be .002 mf.

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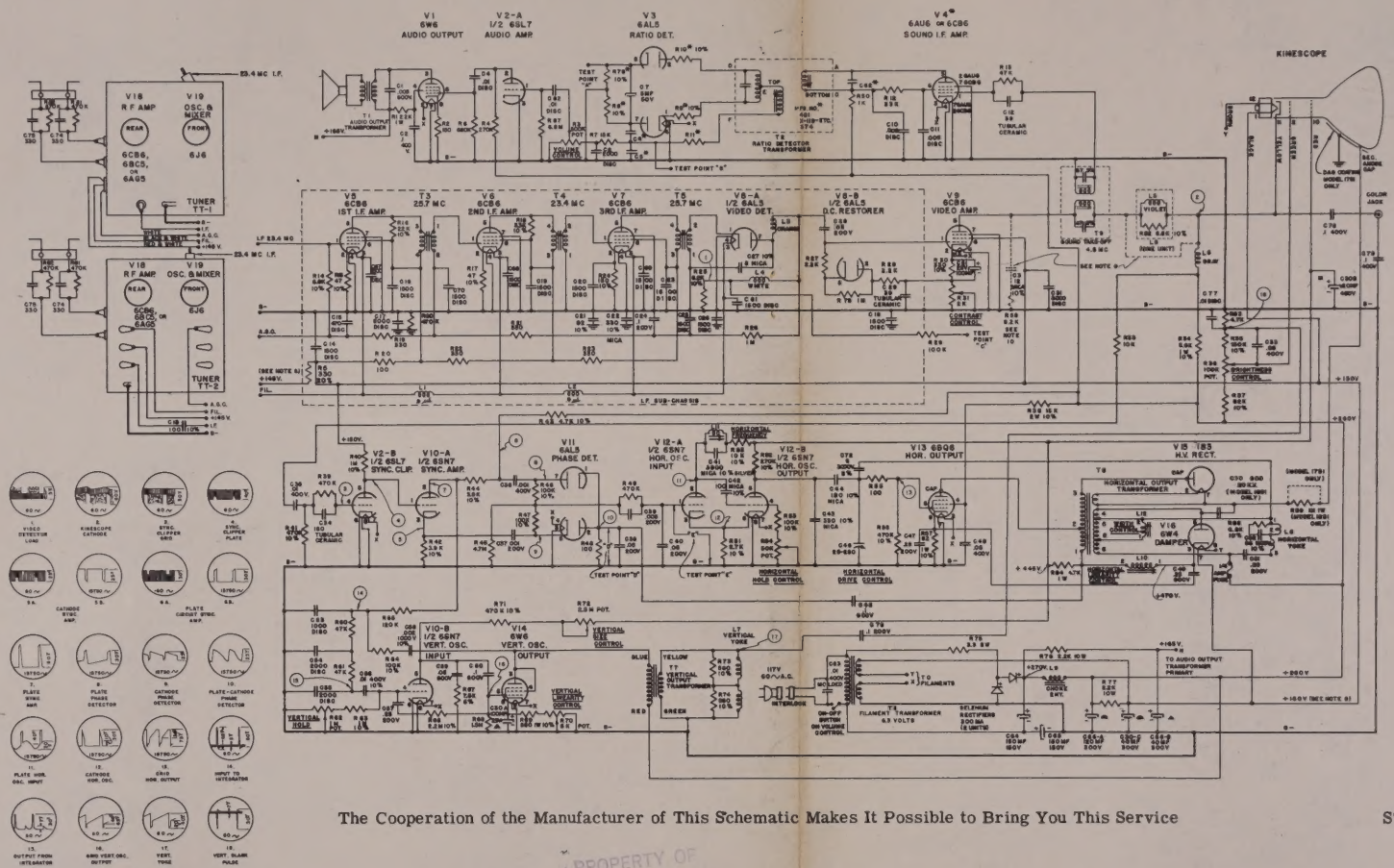
RAYTHEON MODEL M-1626
(Ch. 16AY212)



* THE USE OF RATIO DETECTOR TRANSFORMERS OF VARIOUS MANUFACTURE NECESSITATES THE USE OF COMPONENTS AS LISTED BELOW.

TRANS. NO.	V4	C5	C6	C42	R2	R9	R10	R11	C70
401	6AU6 USED	INST. 470	INST. 470	0.05 USED	0.2 K	1K	1K	330	0.25
X-18-ETC	6AU6	330	NOT USED	NOT USED	0.2 K	1K	1K	180	0.25
	6CB6	330		5	15 K	330	330	100	15 K
574	6CB6	330	NOT USED	NOT USED	15 K	330	330	100	15 K
						NOT USED	NOT USED	NOT USED	15 K

WHEN RESISTORS ARE OMITTED MAKE CONNECTIONS DIRECT. WHEN CONDENSERS ARE OMITTED DO NOT CONNECT TIE POINTS.

TUBE COMPLEMENT

V. NO.	TUBE	TUBE FUNCTION
V1	6W6	AUDIO OUTPUT
V2	6SL7	AUDIO AMP. & SYNC. CLIPPER
V3	6AL5	RATIO DETECTOR
V4	6AU6 OR 6CB6	SOUND I.F. AMP.
V5	6CB6	FIRST VIDEO I.F. AMP.
V6	6CB6	SECOND VIDEO I.F. AMP.
V7	6CB6	THIRD VIDEO I.F. AMP.
V8	6AL5	VIDEO DETECTOR & D.C. RESTORER
V9	6CB6	VIDEO AMP.
V10	6SN7	SYNC. AMP. & VERT. OSC. INPUT
V11	6AL5	PHASE DETECTOR
V12	6SN7	HORIZONTAL OSC.
V13	6BQ6	HORIZONTAL OUTPUT
V14	6W6	VERTICAL OSC. OUTPUT
V15	1B3	H.V. RECTIFIER
V16	6W4	DAMPER
V17	17BP4, 20QP4-OR 20QP5	KINESCOPE
V18	6CB6, 6BC5, OR 6AG5	R.F. AMP.
V19	6J6	OSC. & MIXER

NOTES

1. ALL RESISTANCE VALUES ARE IN OHMS.
2. K = 1,000.
3. M = 1,000,000.
4. ALL RESISTORS ARE 1/2 WATT, ±10% UNLESS OTHERWISE NOTED.
5. ALL CAPACITANCE VALUES LESS THAN ONE ARE IN MICROFARADS, GREATER THAN ONE IN MICROMICROFARADS UNLESS OTHERWISE NOTED.
6. ⏚ DENOTES CHASSIS GROUND.
7. I.F. SUB-CHASSIS AND TUNER ARE INSULATED FROM CHASSIS GROUND AND ARE AT B- POTENTIAL.
8. THESE VOLTAGES VARY WITH SIGNAL STRENGTH AS FOLLOWS:
   UNDER THE CONDITION OF NO SIGNAL I.F. B+ = 150V., TUNER B+ = 145V.
   UNDER THE CONDITION OF STRONG SIGNAL I.F. B+ = 130V., TUNER B+ = 175V.
9. WHEN L8 IS CONNECTED AS SHOW BY DOTTED LINE (INSULATE C9 AS SHOWN).
10. R38 IS USED IN SOME SETS.

The Cooperation of the Manufacturer of This Schematic Makes It Possible to Bring You This Service

STARRETT CHASSIS
17S1, 18S1

PROPERTY OF
E. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

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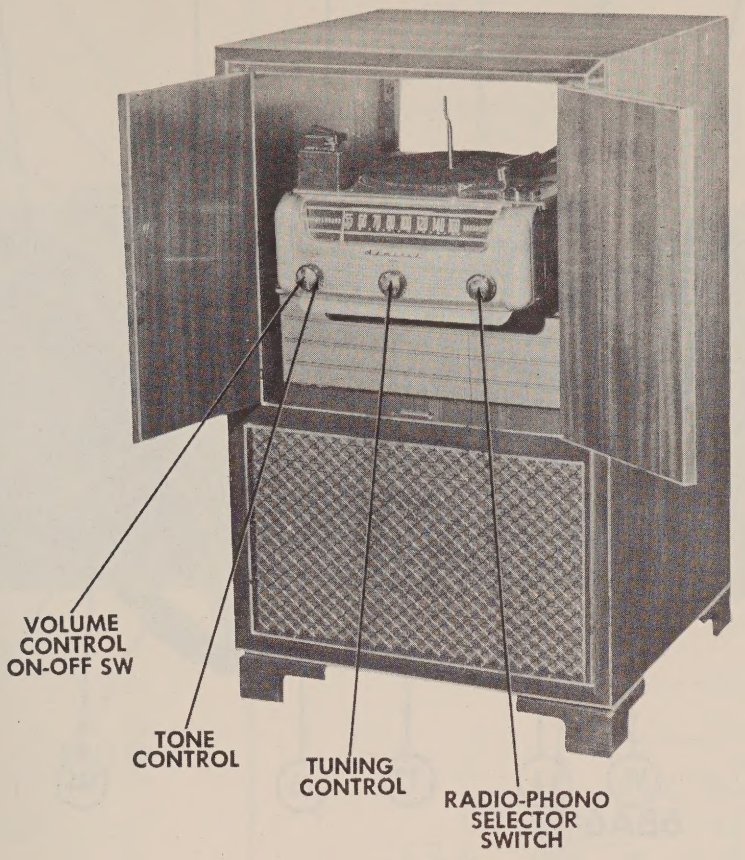
ADMIRAL
CHASSIS 5R2



ADMIRAL
CHASSIS 5R2

ADMIRAL MODEL 6N26

TRADE NAME	Admiral Models 6N25, 6N26, 6N27 (Radio Ch. 5R2 & Power Ch. 1PA4)
MANUFACTURER	Admiral Corp. 3800W. Cortland St., Chicago 47, Ill.
TYPE SET	AC Operated Radio - Phono Combination Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Conv., 6BA6 IF Amp., 6AV6 Det. -AVC-AF Amp. 6AQ5 Audio Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .51 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7, (grid), of 6BE6, (V1). Low side to chassis.	455KC (400~mod)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune for max. output	"	A6, A7	"

RECORD CHANGER UNIT RC550 - SIMILAR TO RC500 PHOTOFACT SET #132 - FOLDER No. 2.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det. -AVC-AF Amp.	6AV6	6AV6	7BT	
V5	Audio Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	60	450	67C15-17	AFH3-45		UPT62245		TVL-3790	▪ Filter
B	20	350							■ Filter
C	20	350							▲ Filter
C2	50	25	67A4-10	PRS25/50		BR502A		TVA-1206	Audio Output Cathode
C3	5		65B1-62	SI5	TCZ-4.7	5W5V5	GP1K-050	MS-55	RF Coupling
C4	.1	400	64B5-20	P488-1	DF-104	PTE4P1		4TM-P1	RF Amp. Screen Bypass
C5	50		65B6-4	SI50	D6-500	TM5Q5	GP1K-500	5GA-Q5	Osc. Grid Cap.
C6	.1	400	64B5-20	P488-1	DF-104	PTE4P1		4TM-P1	Osc. Anode Bypass
C7	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	5HK-D5	IF Amp. Screen Bypass
C8A	100		♦63A3-1	SI100	♦PC-50	TM5T1	GP1K-101	♦100C1	Diode Load Cap.
B	100			SI100		TM5T1	GP1K-101		Diode Load Cap.
C9	.1	200	64B5-30	P488-1	DF-104	PJ2P1		4TM-P1	AVC Filter
C10	100		65B6-3	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Diode Load Cap.
C11	10000		65A10-3	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Audio Coupling
C12	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Tone Comp.
C13	2000		65A10-7	BPD-002	DD-202	TM5D2	801-002	5HK-D2	Tone Comp.
C14	.1	400	64B5-20	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C15	.1	400	64B5-20	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C16	10000		65A10-3	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Audio Coupling
C17	.0022	600	64B5-14	P688-0022	D6-222	PTED22	GP2-333-222	6TM-D22	Audio Output Plate

♦ Items C8A, C8B and R8 are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
				"Concentrikit"		
R1A	2Meg	½	75B11-17	B11-139 *	RTV-284	Tone Control - Panel- See note
B	1Meg	½		B19-137X *		Volume Control - Tapped ⓖ 500KΩ - Rear
C	Shaft End		Not Req.	E202 *	Not Req.	Attach per instructions in "Concentrikit"
D	Switch		Not Req.	76-1 *	Not Req.	Attach per instructions in "Concentrikit"

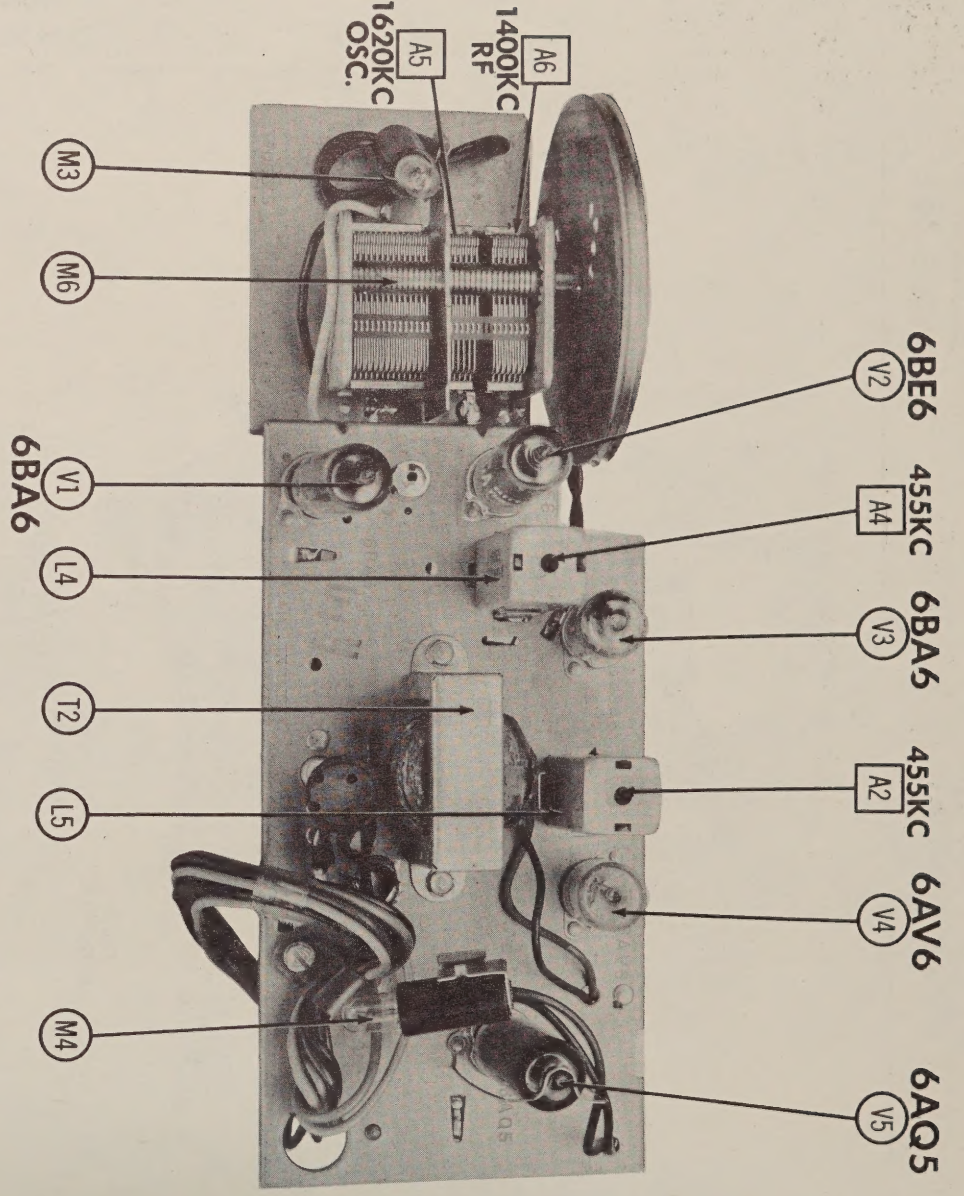
* Additional parts to be used with "Concentrikit"
Note: Some models use dual control Part #75B11-11

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES
R2	150Ω	½	60B8-151	BTS-150	RF Amp. Cathode
R3	39KΩ	1	60B14-393		RF Amp. Screen
R4	22KΩ	½	60B8-223	BTS-22K	Osc. Grid
R5	10KΩ	1	60B14-103		Osc. Plate
R6	150Ω	½	60B8-151	BTS-150	IF Amp. Cathode
R7	27KΩ	1	60B14-273		IF Amp. Screen
R8	47KΩ	½	♦63A3-1	BTS-47K	Diode Filter
R9	1Meg	½	60B8-105	BTS-1Meg	AVC Network
R10	4.7Meg	½	60B8-475	BTS-4.7Meg	AF Amp. Grid
R11	470KΩ	½	60B8-474	BTS-470K	AF Amp. Plate
R12	82KΩ	½	60B8-823	BTS-82K	Tone Compensation
R13	47KΩ	½	60B8-473	BTS-47K	AF Amp. Decoupling
R14	470KΩ	½	60B8-474	BTS-470K	Output Grid
R15	270Ω	2	60B20-271		Output Cathode
R16A	310Ω	5	61A5-10		Filter - Wire Wound
B	310Ω	5			Filter - Wire Wound

♦ Items R8, C8A, C8B, are combined in one unit

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⓐ .51A	520VCT .070ADC	5VAC ⓐ 2A	6.3VAC ⓐ 1.9A	80B22	PM8404 ①	P-3052 ①	PH-70 ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4.3KΩ	3.5Ω	320Ω	.5Ω	79A22	A-3877 ②	A-3026 ②	RO-9 ②	② Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	ADMIRAL PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P. M.	3.5Ω	78B49-2 78B49-3 ③	ST-115 Mod. P8-V	9A21	③ Alternate speaker
	CONE DIA.	V. C. DIA.				
SP1B	7 3/8"	3/4"				

COILS (RF-IF)

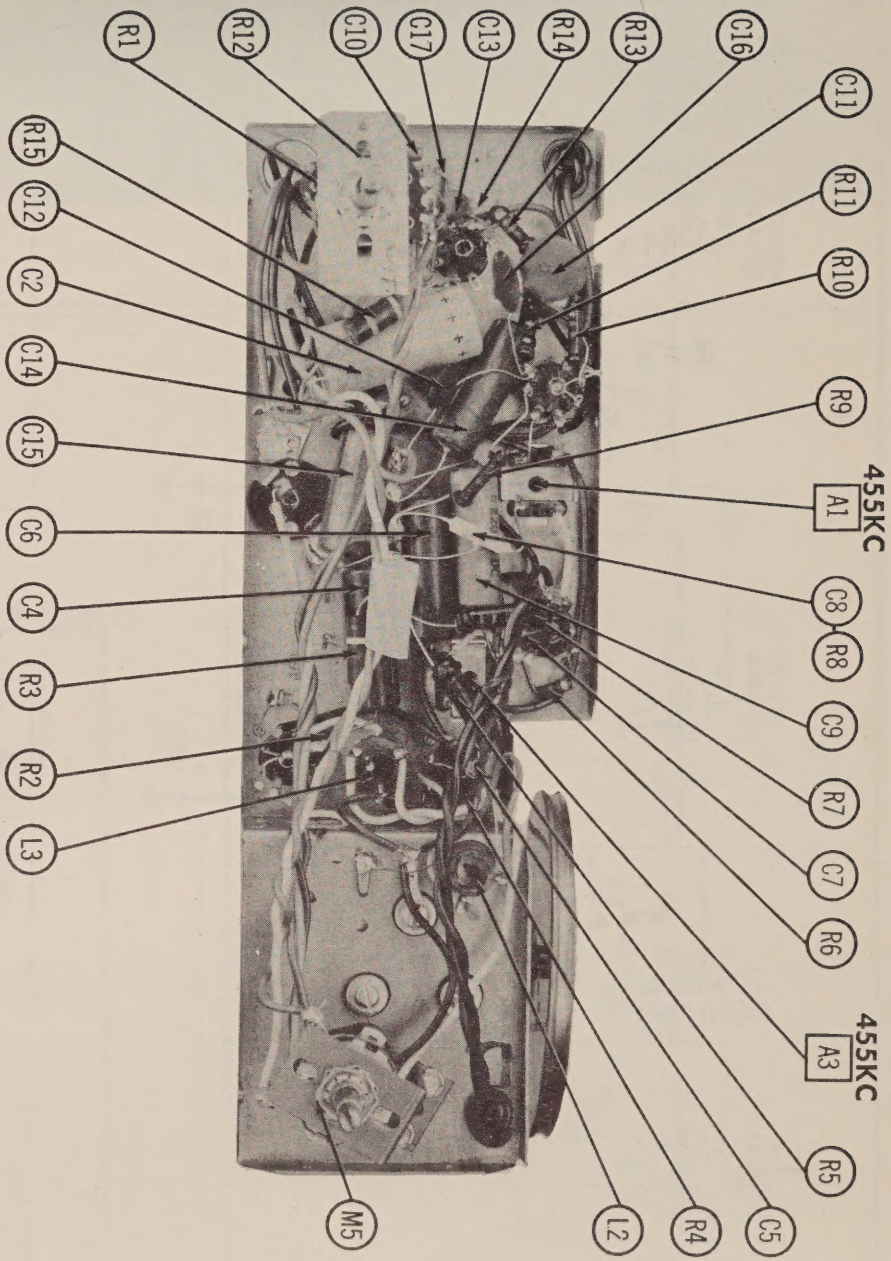
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ADMIRAL PART No.	MERIT PART No.	
L1	Loop Ant.	1.4Ω		69C116-2		
L2	RF Coil	1.9Ω	9.5Ω	69A115-2		Tap ⓐ 5.5Ω
L3	Osc. Coil	6.8Ω		69A52-5	BC-381	Tap ⓐ .6Ω
L4	Input IF	18Ω	18Ω	72B28-7	BC-352	
L5	Output IF	18Ω	18Ω	72B28-7	BC-353	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	ADMIRAL PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	409A13-1	AC-AG-J	A-AG	W26B	A66U	33	0-2 or S-2	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

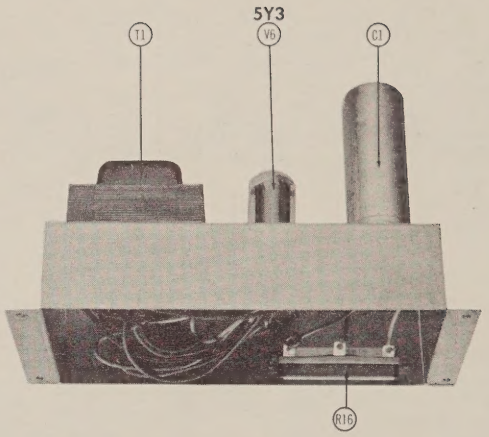
ITEM No.	REPLACEMENT DATA			REMARKS
	ADMIRAL PART No.	WALCO PART No.	JENSEN PART No.	
M2	98A15-18	W-20AGA or W-21AGS	E-962 or E-902	

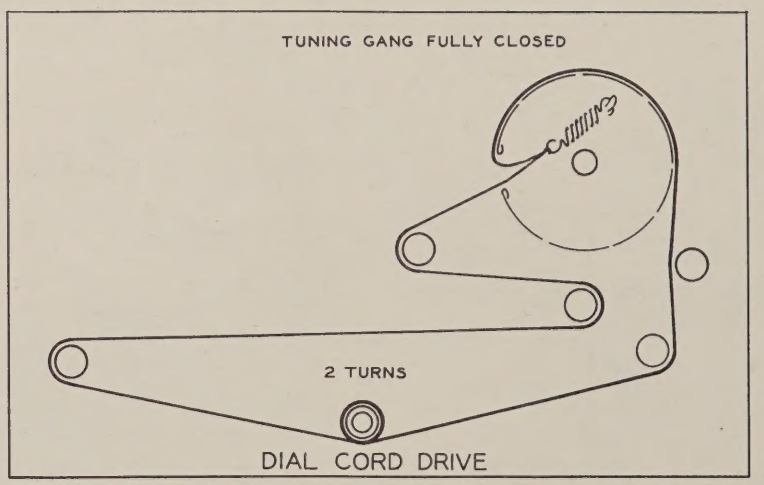
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ADMIRAL PART No.		
M3	Bayonet	6-8	.15	Brown	81A1-8		Type #47
M4	Bayonet	6-8	.15	Brown	81A1-8		Type #47

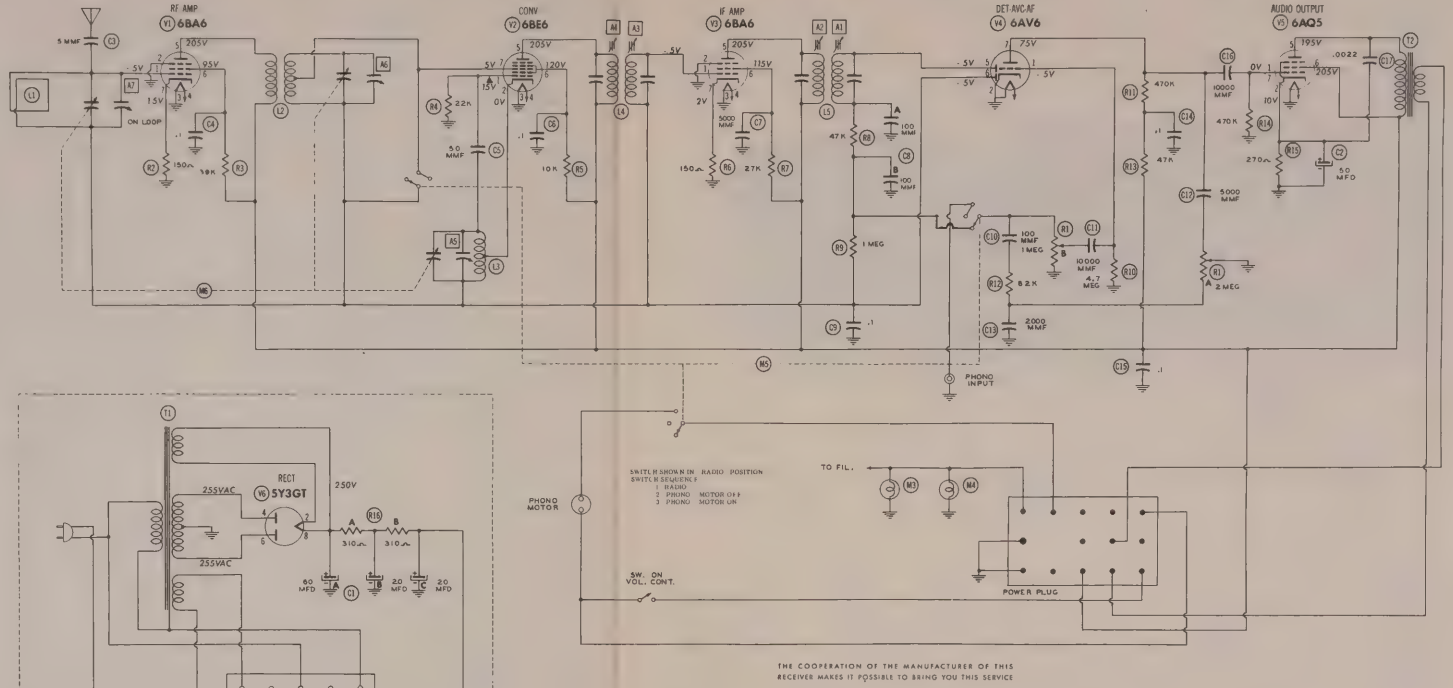
MISCELLANEOUS

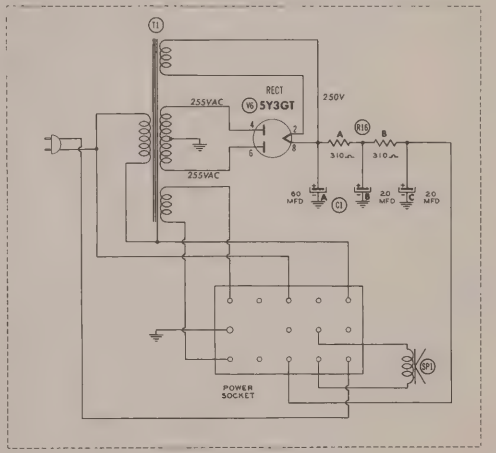
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M5	Switch	77A28-2	Radio-Phono
M6	3Gang Var. Cap.	68B46-2	(15-437MMF, 20-224MMF, 19-157MMF)
A7	Trimmer	66B8-5	Ant. Adj.
	Cabinet	35E189-1	Walnut (Model 6N25)
	Cabinet	35E189-2	Mahogany (Model 6N26)
	Cabinet	35E189-3	Blonde (Model 6N27)
	Dial Scale	22B23-1	
	Pointer	25A37	
	Knob	33D55-1	Radio - Phono, Tuning
	Knob	33D55-4	Tone
	Knob	33D55-5	Volume





DIAL CORD DRIVE





IF = 455 KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	2Meg	0Ω	0Ω	.2Ω	†620Ω	†40KΩ	150Ω	
V 2	6BE6	22KΩ	.7Ω	0Ω	.2Ω	†620Ω	†11KΩ	2Meg	
V 3	6BA6	2Meg	0Ω	0Ω	.2Ω	†620Ω	†28KΩ	150Ω	
V 4	6AV6	4.7Meg	0Ω	0Ω	.2Ω	1Meg	2Meg	†515KΩ	
V 5	6AQ5	470KΩ	270Ω	0Ω	.2Ω	†940Ω	†620Ω	470KΩ	
V 6	5Y3GT	INF	120KΩ	INF	260Ω	INF	250Ω	INF	120KΩ

ALL MEASUREMENTS TAKEN IN "RADIO" POSITION ONLY
† MEASURED FROM PIN 2 OF V6
▲ TAKEN WITH VACUUM TUBE VOLTMETER

PROPERTY OF
DEPT.

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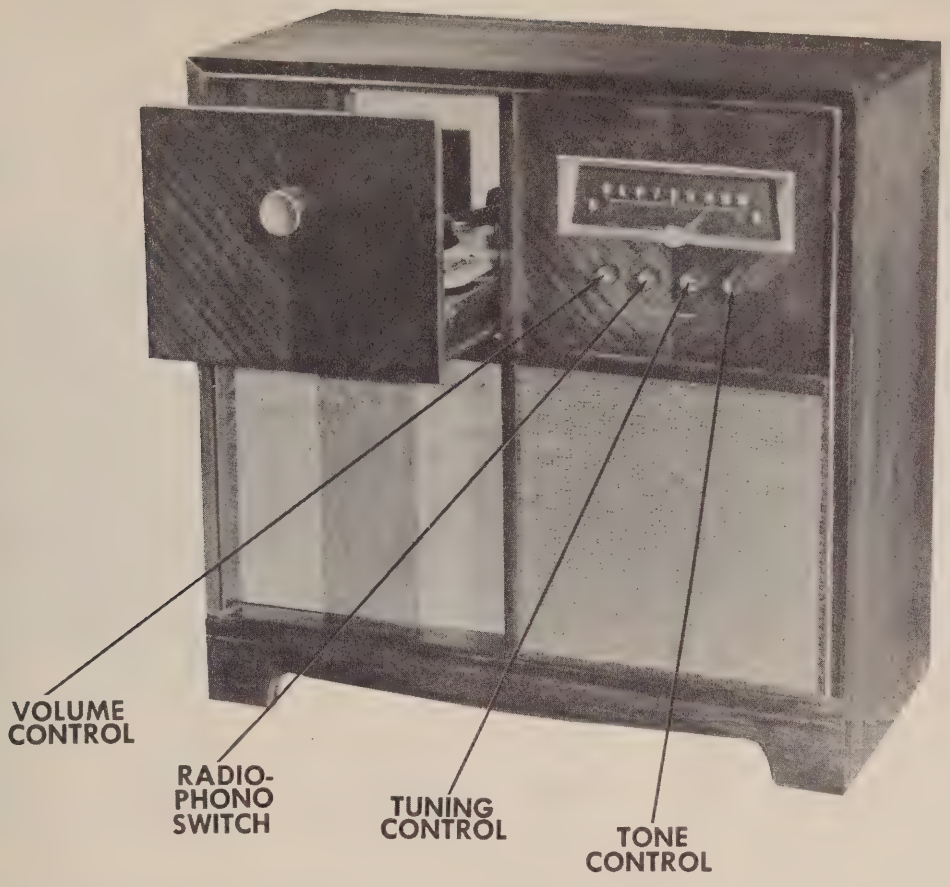
AIRLINE
MODEL 15GSE-2764A



AIRLINE
MODEL 15GSE-2764A

TRADE NAME	Airline Model 15GSE-2764A
MANUFACTURER	Montgomery Ward & Co., 619 Chicago Ave., Chicago Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver
TUBES (Six)	Types 12SK7, RF Amp., 12SA7 Conv., 12SK7 IF Amp., 12SQ7 Det.-AVC-AF Amp. 35L6GT Audio Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .25Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	530-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.2MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400Mod)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into receiver loop. Adjust A5 for MINIMUM output.
3.		"	1650KC	"	"	A6	Adjust for maximum output.
4.		"	1400KC	Tune for max. output.	"	A7	"

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT SEE MISCELLANEOUS MODEL 700F 33/45 PHOTOFACT SET 75 - FOLDER 11 OR RECORD CHANGER MANUAL CM-3.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

AIRLINE
MODEL 15GSE-2764A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Airline PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	12SK7	12SK7	8N	
V2	Converter	12SA7	12SA7	8R	
V3	IF Amplifier	12SK7	12SK7	8N	
V4	Det. -AVC-AF Amp.	12SQ7	12SQ7	8Q	
V5	Audio Output	35L6GT	35L6GT	7AC	
V6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	25E6	PRS150/50-50		EDL5515		TVA-2453	Filter (Yellow)
B	50	150							Filter (Red)
C2	.05	200	23E216	P288-05	DF-503	PJ2S5		2TM-S5	AVC Filter
C3	.01	200	23E211	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	RF Amp. Screen Bypass
C4	250	500	23E42	1468-00025	D6-251		GP2K-251		RF Coupling
C5	50	500	23E37	1468-00005	D6-500		GP1K-500		Osc. Grid Cap.
C6	250	500	23E42	1468-00025	D6-251		GP2K-251		Diode RF Filter
C7	100	500	23E39	1468-0001	D6-101		GP1K-101		Tone Comp.
C8	.005	400	23E408	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C9	100	500	23E39	1468-0001	D6-101		GP1K-101		AF Amp. Plate Bypass
C10	.005	400	23E408	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C11	.002	400	23E405	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Tone Comp.
C12	.01	400	23E411	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Output Plate
C13	.05	400	23E416	489ZGXY-05		PJ4S5		4TM-S5	Phono Isolation
C14	.05	400	23E416	489ZGXY-05		PJ4S5		4TM-S5	Line Filter
C15	.2	400	23E420	P488-22		PTEP22		4TM-P22	Line Isolation

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	28E8	Q13-133	AG-60-Z	BSK-60	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions.
R2A	500KΩ	½	28E8	Q13-133	AG-60-Z	BSK-60	Tone Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R2A per instructions.

RESISTORS

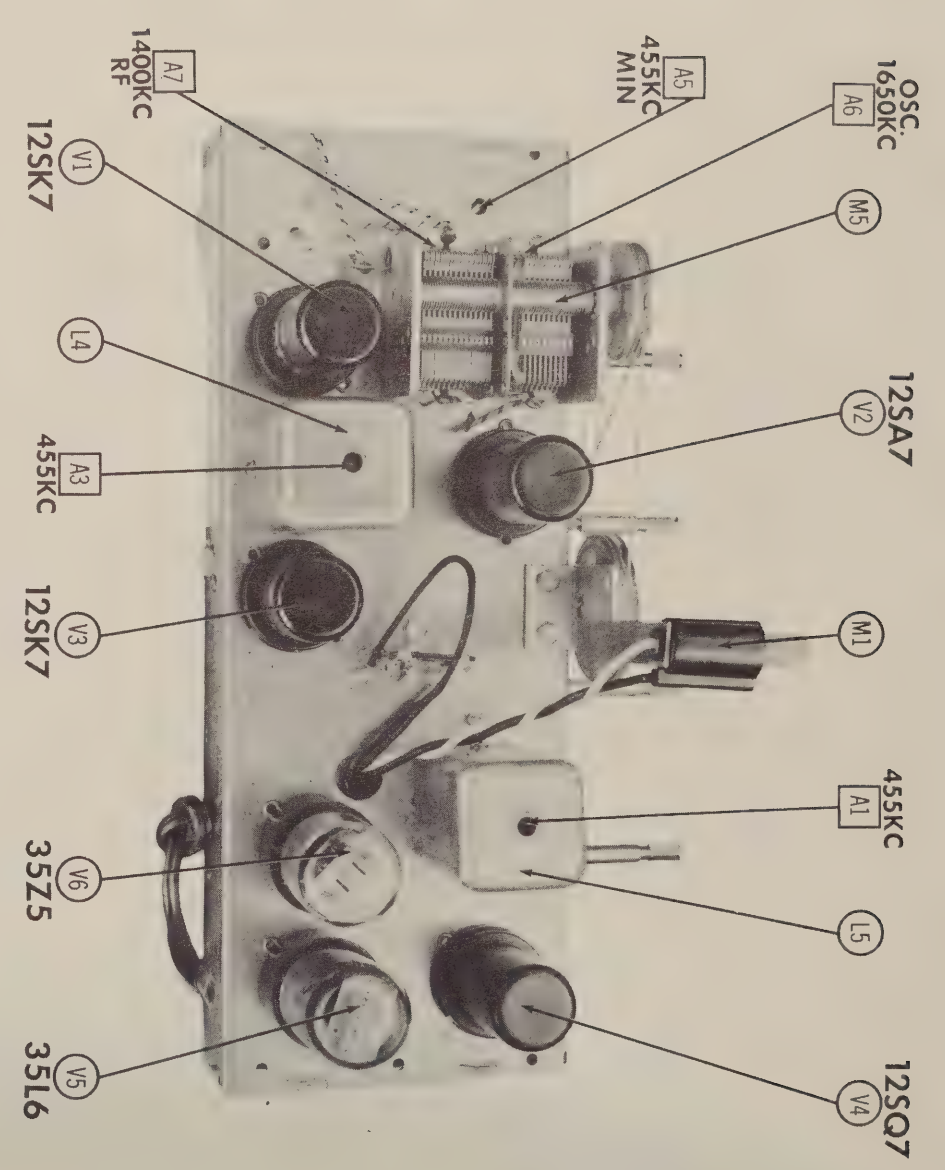
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
R3	220KΩ	½	27E224	BTS-220K	Line Isolation
R4	8200Ω	½	27E822		RF Amp. Plate
R5	47KΩ	½	27E473	BTS-47K	RF Amp. Screen
R6	220KΩ	½	27E224		Mixer Grid
R7	22KΩ	½	27E223	BTS-22K	Osc. Grid
R8	10Meg	½	27E106	BTS-10Meg	AVC Network - See note 1.
R9	3.3Meg	½	27E335	BTS-3.3Meg	AVC Network
R10	3.3Meg	½	27E335	BTS-3.3Meg	AF Amp. Grid
R11	470KΩ	½	27E474	BTS-470K	AF Amp. Plate
R12	470KΩ	½	27E474	BTS-470K	Output Grid
R13	150Ω	½	27E151	BTS-150	Output Cathode
R14	1000Ω	1	27E102-3	BTA-1000	Filter
R15	47Ω	½	27E47-2		Rectifier Ballast
R16	100Ω	½	27E101-2	BTS-100	Pilot Lamp Shunt
R17	10Meg	½	27E106	BTS-10Meg	AVC Network - See note 2.

Note 1. Some models use a 20Meg resistor in this application.
Note 2. Not used in all models.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA: AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	3.6KΩ	3.8Ω	225Ω	1Ω	22E8	A-3332	A-3026		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P. M.	3.8Ω	1E34-2 1E34 ①	ST-115 Mod..P8-V	8A21	① Alternate Speaker
	CONE DIA.	V. C. DIA.				
SP1B	8"	3/4"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AIRLINE PART No.	MERIT PART No.	
L1	Loop Ant.	.2Ω	2.8Ω	64E21-2		
L2	RF Choke	47Ω		2E19		
L3	Osc. Coil	.6Ω	7.5Ω	20E64	BC-381	
L4A	Input IF	11.8Ω	11.8Ω	20E549	BC-338	
B	Input IF			20E261		Alternate
L5A	Output IF	11.8Ω	11.8Ω	20E549-2	BC-340	
B	Output IF			20E261-2		Alternate

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								REMARKS
	AIRLINE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	33-2	AC-AG-J	A-AG	W26B	A66U	33	0-2 or S-2	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	AIRLINE PART No.	WALCO PART No.	JENSEN PART No.	
M2	0-2E	W-20AGA or W-21AGS	E-962 or E-902	

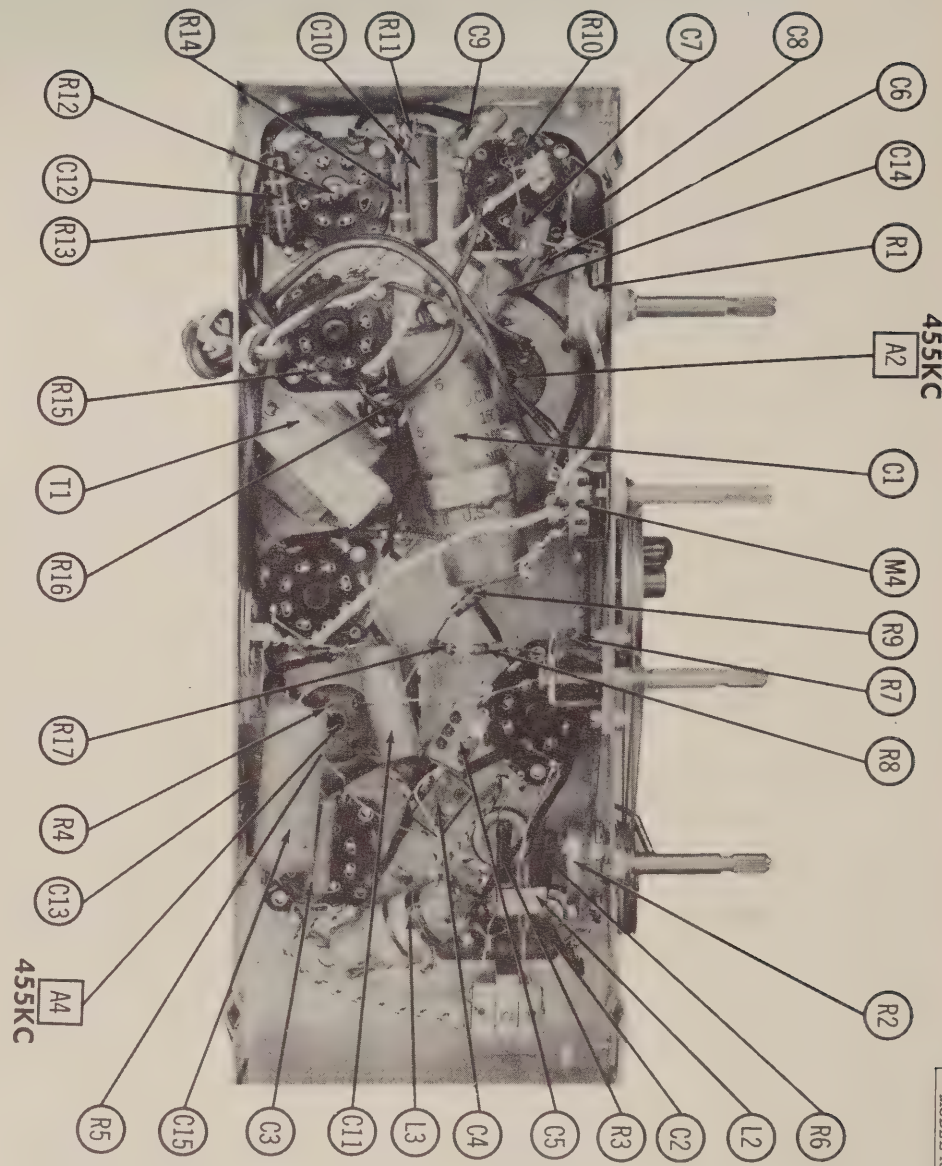
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					AIRLINE PART No.		
M3	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

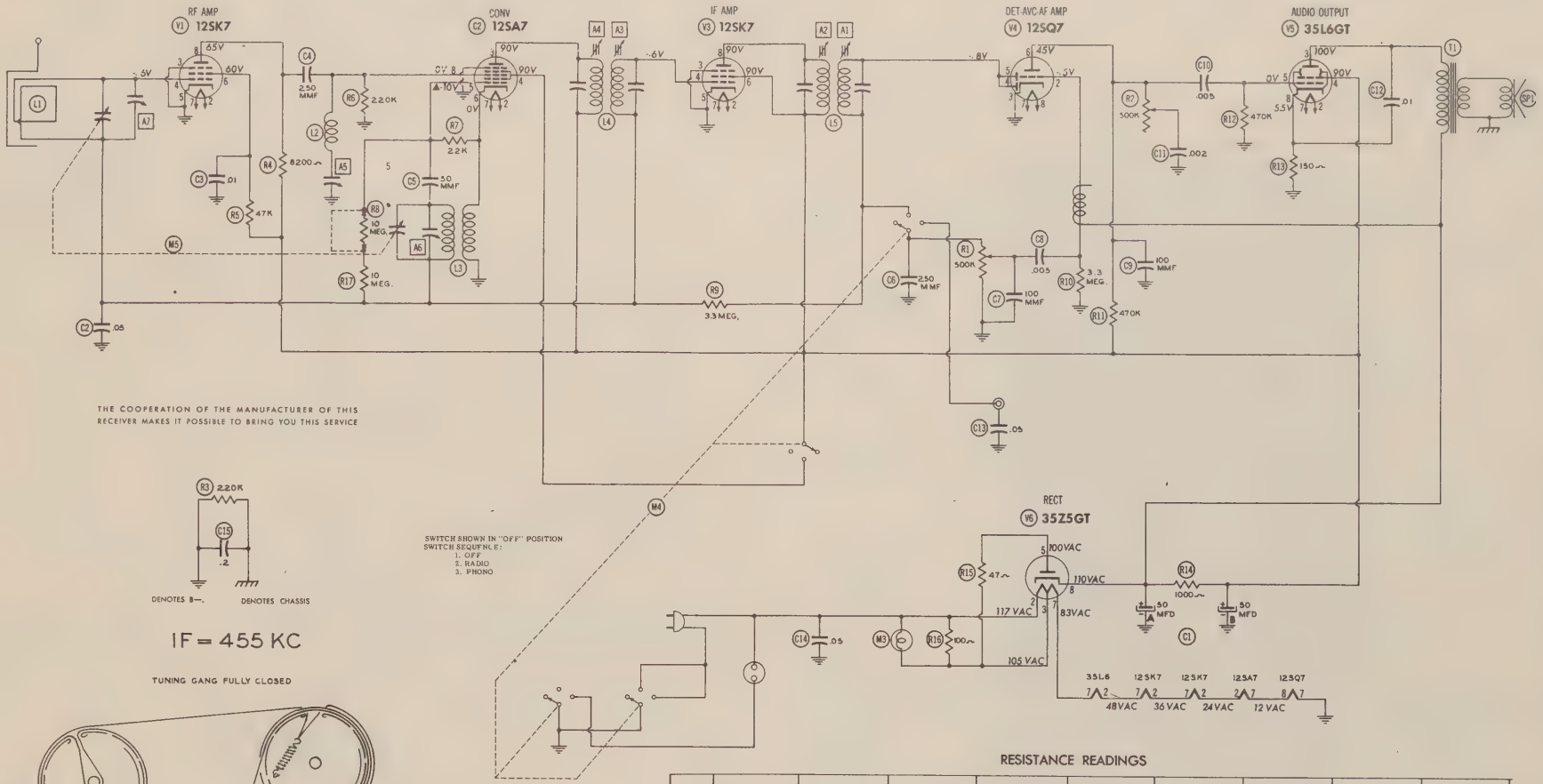
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M4	Switch	29E28	Function Selector
M5	2Gang Var. Cap.	24E57	(25-469MMF, 31-202MMF)
A3	Trimmer	24E3	Trap Adj. (3-35MMF)
	Dial Scale	36E82	
	Dial Pointer	20E717	
	Knob	37E74	4 Used

CHASSIS—BOTTOM VIEW



AIRLINE MODEL 15GSE-2764A

AIRLINE MODEL 15GSE-2764A



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SK7	¶0Ω	24Ω	0Ω	3.8Meg	0Ω	†48KΩ	36Ω	†9.2KΩ
V 2	12SA7	¶0Ω	24Ω	†1KΩ	†1KΩ	22KΩ	.8Ω	12Ω	220KΩ
V 3	12SK7	¶0Ω	36Ω	0Ω	3.8Meg	0Ω	†1KΩ	48Ω	†1KΩ
V 4	12SQ7	¶0Ω	3.3Meg	0Ω	500KΩ	500KΩ	†470KΩ	0Ω	12Ω
V 5	35L6GT	0Ω	48Ω	†225Ω	†1KΩ	470KΩ	INF	83Ω	150Ω
V 6	35Z5GT	INF	118Ω	100Ω	INF	165Ω	INF	83Ω	40KΩ

ALL MEASUREMENTS TAKEN IN "RADIO" POSITION
† MEASURED FROM PIN 8 OF V6
▲ TAKEN WITH VACUUM TUBE VOLTMETER
¶ MEASURED FROM CHASSIS

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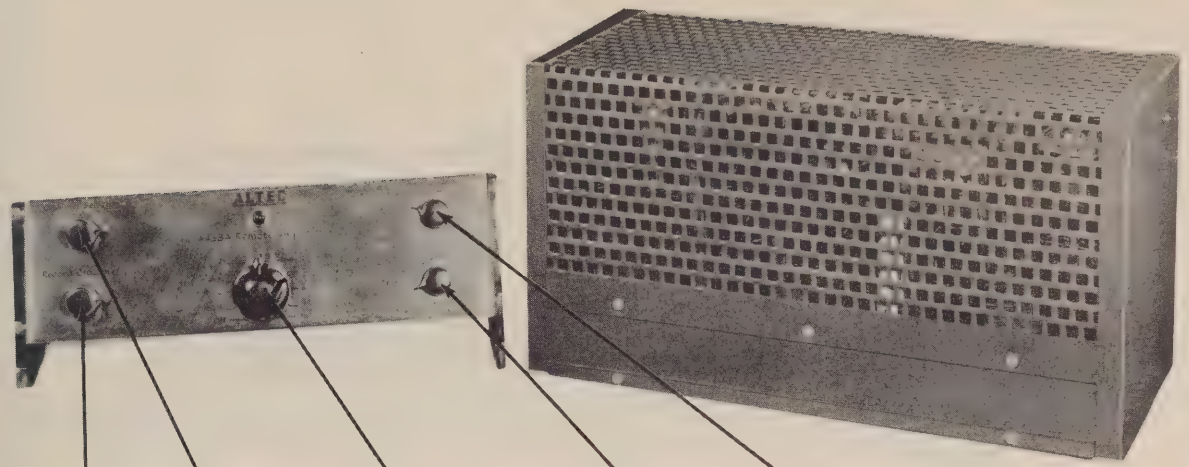
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALTEC LANSING
MODELS A-333A, A-433A



RECORD CROSSOVER SWITCH

CHANNEL SELECTOR SWITCH

VOLUME CONTROL ON-OFF SW.

TREBLE CONTROL

BASS CONTROL

ALTEC LANSING
MODELS A-333A, A-433A

TRADE NAME	Altec Lansing Models A-333A (Pwr. Unit), A-433A (Remote Unit)
MANUFACTURER	Altec Lansing Corp., 9356 Santa Monica Blvd., Beverly Hills, Calif.
TYPE SET	AC Operated Three Channel Audio Amplifier
TUBES (EIGHT)	Types 12AX7 Phono Pre-Amp.-1st. AF Amp., 12AU7 2nd.AF Amp., 6SJ7 3rd. AF Amp., 6J5 Phase Inverter, (2) 6L6G Audio Output, VR75 Volt Reg., 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC RATING 1.0 Amp. @ 117 Volts AC

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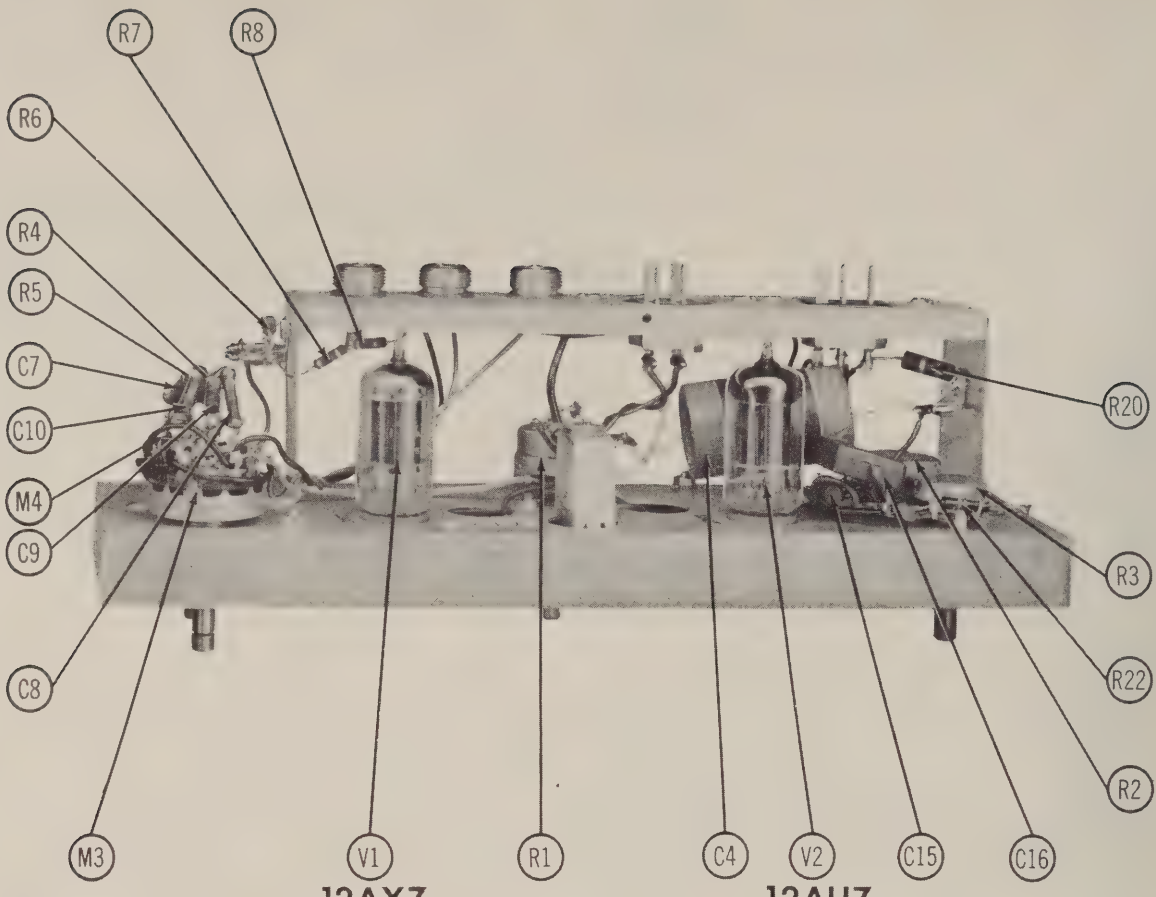
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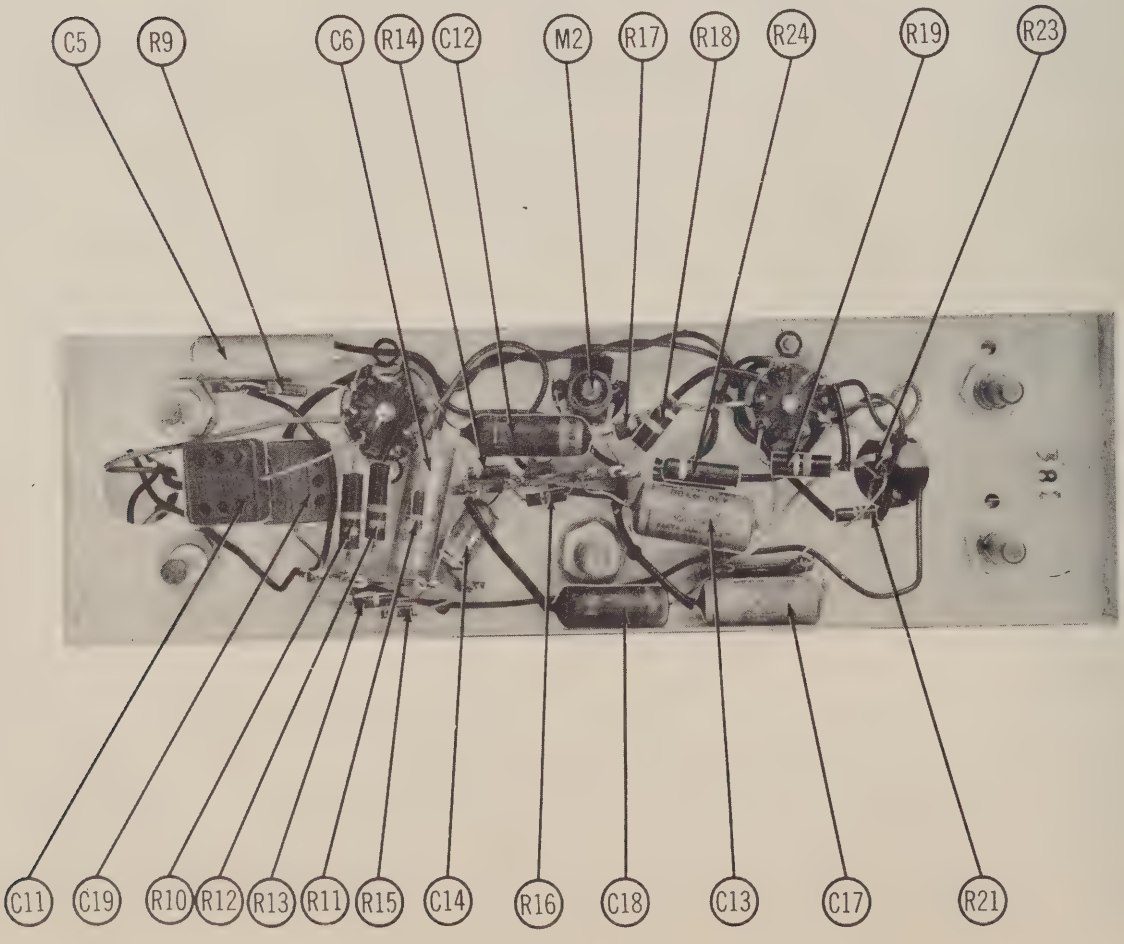
R8
R6
R4
R5
C7
C10
M4
C9
C8
M3
V1
R1
C4
V2
C15
C16
R20
R3
R22
R2
12AX7
12AU7


C5
R9
C6
R14
C12
M2
R17
R18
R24
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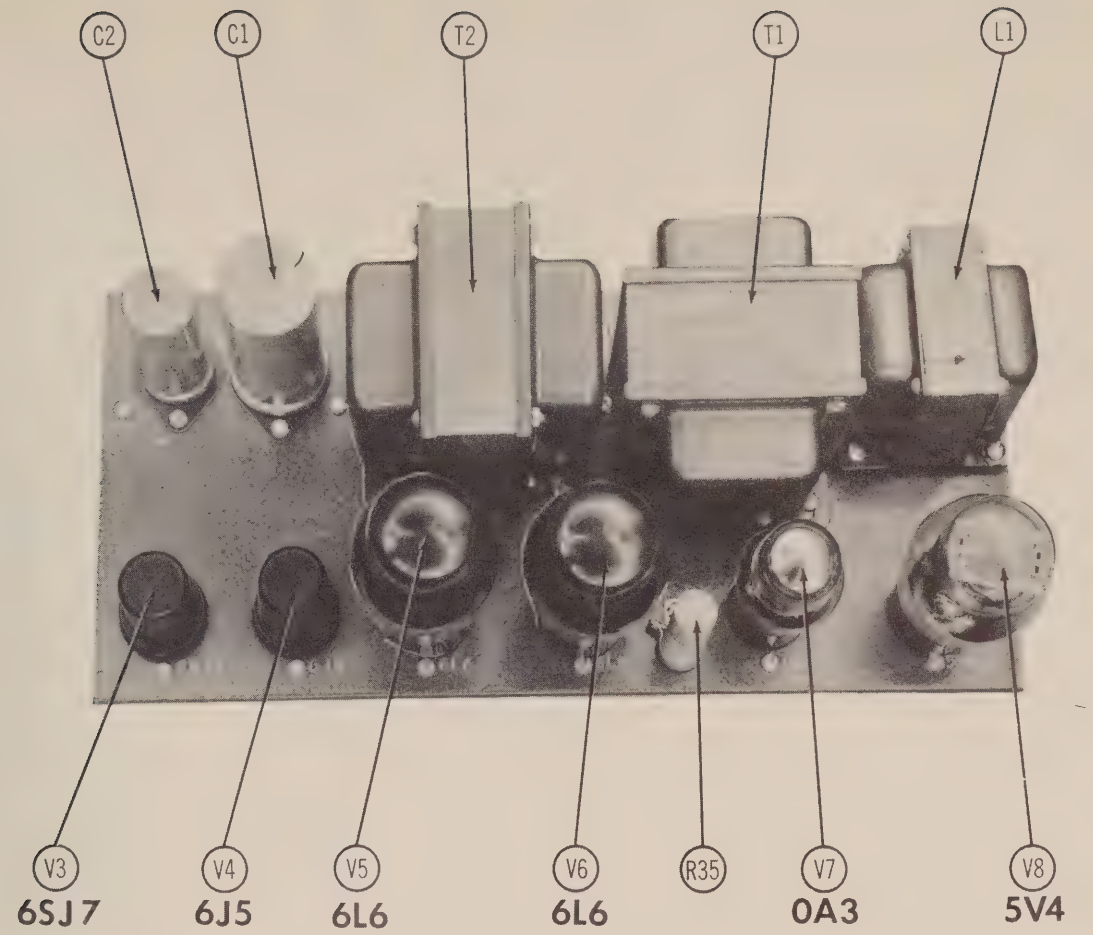
C18
C13
C17
R21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C1
T2
T1
L1
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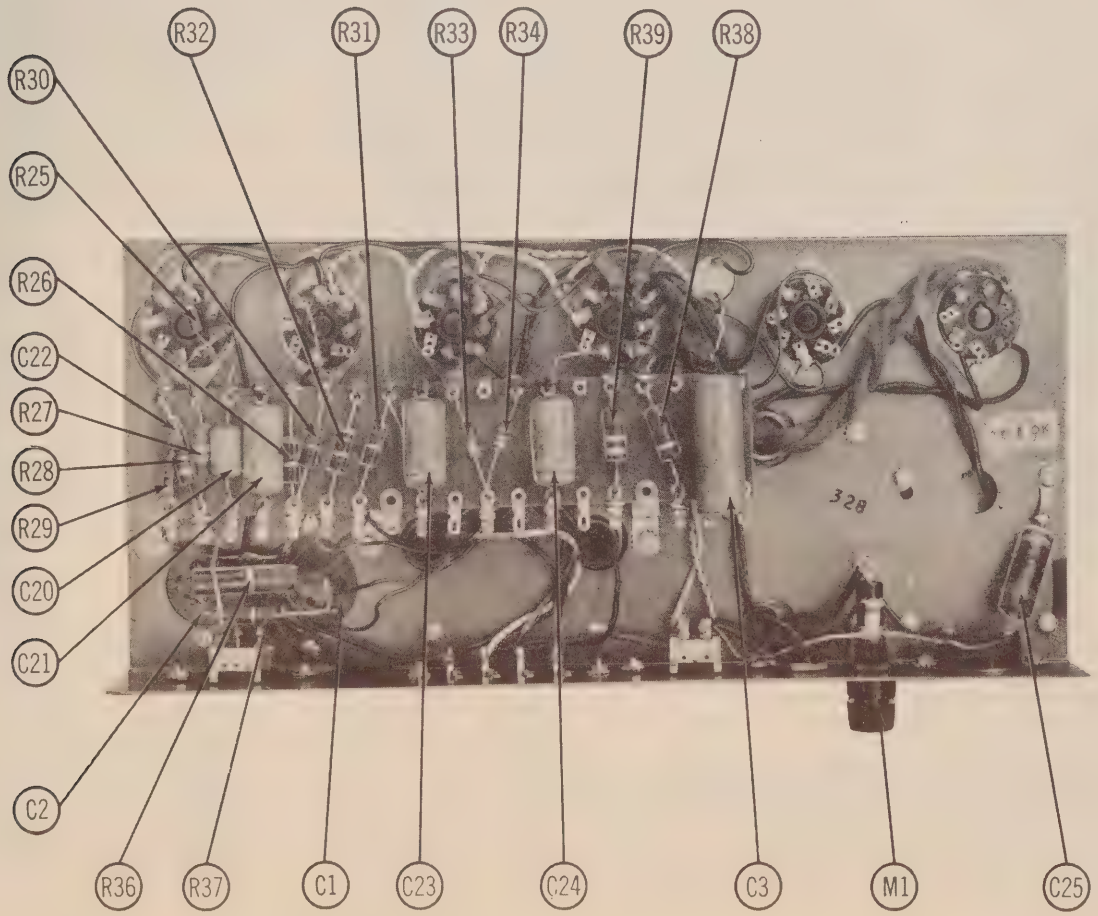
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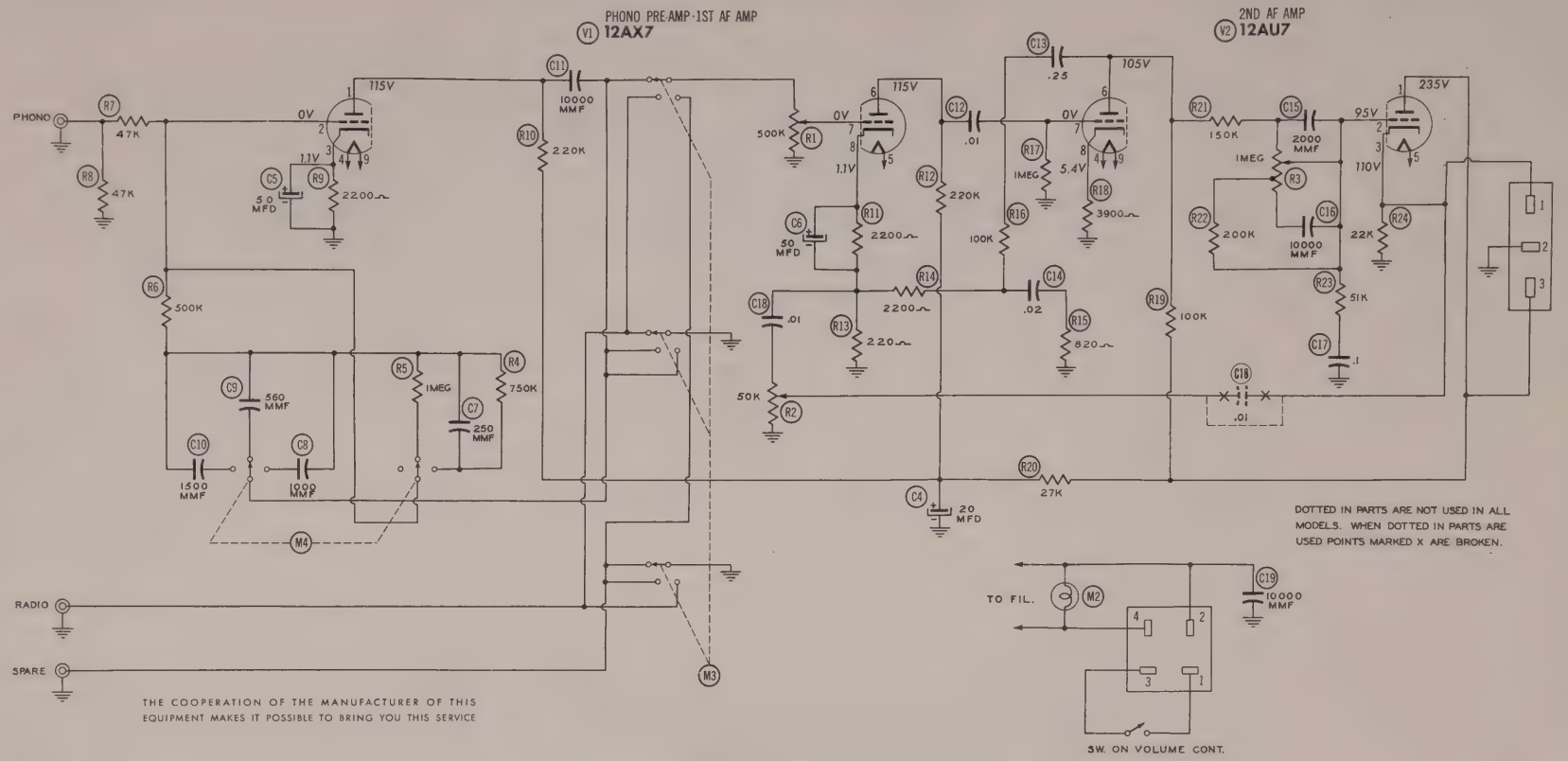
M1
C25



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	■260KΩ	95KΩ	2.2KΩ	¶0Ω	¶0Ω	■260KΩ	0Ω	2.2KΩ	¶.1Ω
V 2	12AU7	■11KΩ	■1.2Meg	22KΩ	¶.1Ω	¶.1Ω	■110KΩ	1Meg	3.9KΩ	¶0Ω
V 3	6S77	0Ω	¶.1Ω	820Ω	1Meg	820Ω	†345KΩ	¶0Ω	†115KΩ	
V 4	6J5	0Ω	¶.1Ω	†48KΩ	INF	†115KΩ	INF	¶0Ω	33KΩ	
V 5	6L6G	0Ω	¶.1Ω	†145Ω	■1.2KΩ	100KΩ	INF	¶0Ω	250Ω	
V 6	6L6G	0Ω	¶.1Ω	†145Ω	■1.2KΩ	100KΩ	INF	¶0Ω	250Ω	
V 7	VR75	INF	60KΩ	INF	INF	†60Ω	INF	INF	■1.2KΩ	
V 8	5U4G	INF	250KΩ	INF	121Ω	INF	129Ω	INF	250KΩ	

ALL MEASUREMENTS TAKEN WITH M3 IN #1 POSITION (PHONO)
† MEASURED FROM PIN 8 OF V8
¶ MEASURED FROM PIN 7 OF V6
■ MEASURED FROM PIN 2 OF V7

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REMOTE AMPLIFIER MODEL A-433A

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Altec Lansing PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Phono Pre Amp.-1st.AF Amplifier	12AX7	12AX7	9A	
V2	2nd. AF Amp.	12AU7	12AU7	9A	
V3	3rd.AF Amplifier	6SJ7	6SJ7	8N	
V4	4th.AF Amplifier-Phase Inverter	6J5	6J5	6Q	
V5	Audio Output	6L6G	6L6G	7AC	
V6	Audio Output	6L6G	6L6G	7AC	
V7	Voltage Reg.	VR75	VR75	6G	
V8	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Altec Lansing PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	500		AFH2-72		UP4450		TVL-2764	▲ Filter
B	40	500							● Filter
C2A	20	450		AFH2-51		UP2245		TVL-2755	■ Decoupling
B	20	450							▲ Decoupling
C3	50	50		PRS50/50		BR505		TVA-1308	Audio Output Cathode
C4	20	450		PRS450/20		BR2045A		TVA-1709	Decoupling
C5	50	3		PRS25/50		BR502A		TVA-1100	Phono Pre Amp. Cathode
C6	50	3		PRS25/50		BR502A		TVA-1100	lst.AF Amp. Cathode
C7	250			SI250	D6-251		GP2K-251	5GA-T25	Tone Comp.
C8	1000			SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	Tone Comp.
C9	560			SI560	D6-561		GP2K-561		Tone Comp.
C10	1500			SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	Tone Comp.
C11	10000	500		1467-01	D6-103	1D3S1	GP2-333-103	1FM-11	Audio Coupling
C12	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C13	.25	400		P488-25		GT4P25		4TM-P25	Tone Comp.
C14	.02	200		P488-02	DF-203	PTE4S2		2TM-S2	Tone Comp.
C15	2000			SI2000	D6-202	1W5D2	GP2-333-202	5HK-D2	Tone Comp.
C16	10000	500		1467-01	D6-103	1D3S1	GP2-333-103	1FM-11	Tone Comp.
C17	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Tone Comp.
C18	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C19	10000	500		1467-01	D6-103	1D3S1	GP2-333-103	1FM-11	Fil. Bypass
C20	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C21	.25	400		P488-25		GT4P25		4TM-P25	3rd.AF Amp. Screen
C22	250			SI250	D6-251	5W5T25	GP2K-251	5GA-T25	4th.AF Amp. Grid
C23	.25	400		P488-25		GT4P25		4TM-P25	Audio Coupling
C24	.25	400		P488-25		GT4P25		4TM-P25	Audio Coupling
C25	.02	600		P688-02		PTE6S2		6TM-S2	Line Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Altec Lansing PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½		Q13-133	AG-60-Z	B-60-S	Volume Control
B	Shaft			Not Req.	RS-2	Not Req.	Attach to R1A per instructions
C	Switch			76-1	SWB	Not Req.	Attach to R1A per instructions
R2A	50KΩ	½		Q11-123	AG-44-S	B-31	Treble Control
B	Shaft			Not Req.	RS-2	Not Req.	Attach to R2A per instructions
R3A	1Meg	½			AK-98	BT-72	Bass Control - Tapped @ 250KΩ
B	Shaft				RS-2	Not Req.	Attach to R3A per instructions

SET 165 FOLDER 5

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Altec Lansing PART No. FUSE	Altec Lansing PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	REMARKS
M1	3AG Slo-Blo	2A-125V			313002	342001	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: Altec Lansing PART No.	REPLACEMENT DATA	NOTES
M2	Bayonet	6-8	.250	Blue			Type #44

MISCELLANEOUS

ITEM No.	PART NAME	Altec Lansing PART No.	NOTES
M3	Switch		Selector (2 Circuit-3 Position)
M4	Switch		Cross-over (4 Circuit-3 Position)

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Altec Lansing PART No.	IRC PART No.	
R4	820KΩ	½		BTS-820K	Tone Compensation
R5	1Meg	½		BTS-1Meg	Tone Compensation
R6	470KΩ	½		BTS-470K	Tone Compensation
R7	47KΩ	½		BTS-47K	Phono Pre Amp. Grid
R8	47KΩ	½		BTS-47K	Phono Shunt
R9	2200Ω	½		BTS-2200	Phono Pre Amp. Cathode
R10	220KΩ	1		BTA-220K	Phono Pre Amp. Plate
R11	2200Ω	½		BTS-2200	1st. AF Amp. Cathode
R12	220KΩ	1		BTA-220K	1st. AF Amp. Plate
R13	220Ω	½		BTS-220	Tone Compensation
R14	2200Ω	½		BTS-2200	Tone Compensation
R15	820Ω	½		BTS-820	Tone Compensation
R16	100KΩ	½		BTS-100K	Tone Compensation
R17	1Meg	½		BTS-1Meg	2nd. AF Amp. Grid
R18	3900Ω	1		BTA-3900	2nd. AF Amp. Cathode
R19	100KΩ	1		BTA-100K	2nd. AF Amp. Plate
R20	27KΩ	1		BTA-27K	Decoupling
R21	150KΩ	½		BTS-150K	Tone Compensation
R22	220KΩ	½		BTS-220K	Tone Compensation See note 1.
R23	47KΩ	½		BTS-47K	Tone Compensation
R24	22KΩ	1		BTA-22K	2nd. AF Amp. Cathode
R25	1Meg	½		BTS-1Meg	3rd. AF Amp. Grid
R26	820Ω	1		BTA-820.	3rd. AF Amp. Cathode
R27	330KΩ	1		BTA-330K	3rd. AF Amp. Screen
R28	100KΩ	1		BTA-100K	3rd. AF Amp. Plate
R29	20KΩ	½		BTS-20K	4th. AF Amp. Grid
R30	33KΩ	1		BTA-33K	4th. AF Amp. Cathode
R31	33KΩ	1		BTA-33K	4th. AF Amp. Plate
R32	4700Ω	½		BTS-4700	Feedback Network
R33	100KΩ	½		BTS-100K	Output Grid
R34	100KΩ	½		BTS-100K	Output Grid
R35	250Ω	10		1 3/4A-250	Output Cathode - Wire Wound
R36	15KΩ	2		BTB-15K	Decoupling
R37	10KΩ	1		BTA-10K	Decoupling
R38	1200Ω	2		BTB-1200	Voltage Dropping
R39	100KΩ	2		BTB-100K	Bleeder

Note 1. In Some Models, Bass Control may have 100KΩ Tap.
In this case R22 is not included in circuit.

TRANSFORMER (POWER)

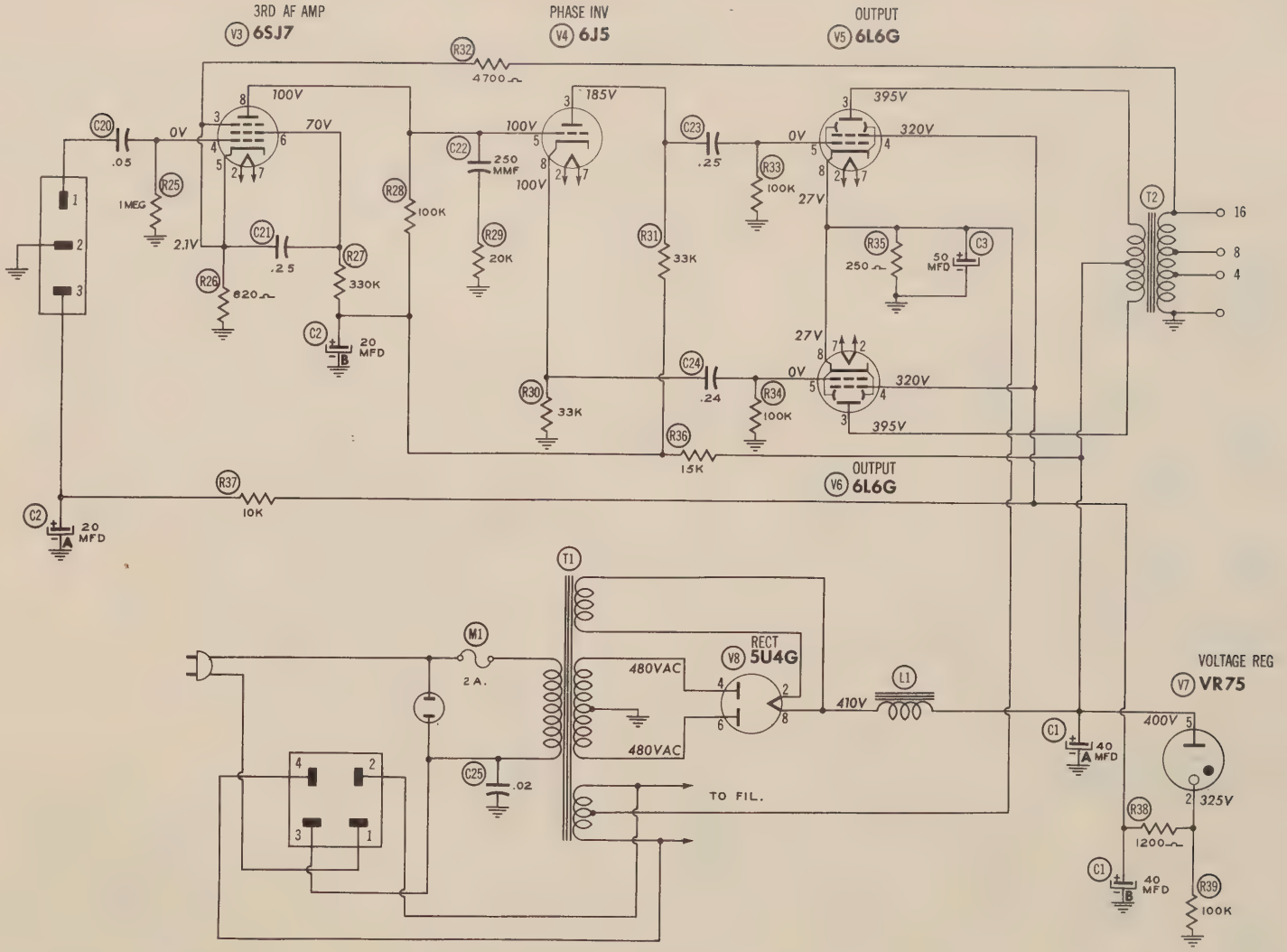
ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	Altec Lansing PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @1.0A	1000VCT .135ADC	5VAC @3.0A	6.3VCT @3.3A	TMA601			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		Altec Lansing PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5KΩCT	4Ω 8Ω 16Ω	170Ω CT	.3Ω .4Ω .5Ω	TMA201		A-3100 ①		① Drill New Mounting Holes

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	Altec Lansing PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.135ADC	60Ω	5.5 Henries	TMA501	C-1421 ①	C-3196 ①	R-7150 ①	① Drill New Mounting Holes



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POWER AMPLIFIER MODEL A-333A

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PHOTOFACT* Folder

*TRADE MARK

HALLICRAFTERS MODELS 17824A, 17906, 17930, 17931, 17932, 17933, 17934, 20823C, 21923, 21928, 21940, 21980

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MODEL 21980

HALLICRAFTERS MODELS 17824A, 17906, 17930, 17931, 17932, 17933, 17934, 20823C, 21923, 21928, 21940, 21980

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DATE 4-52 SET 165 FOLDER 6

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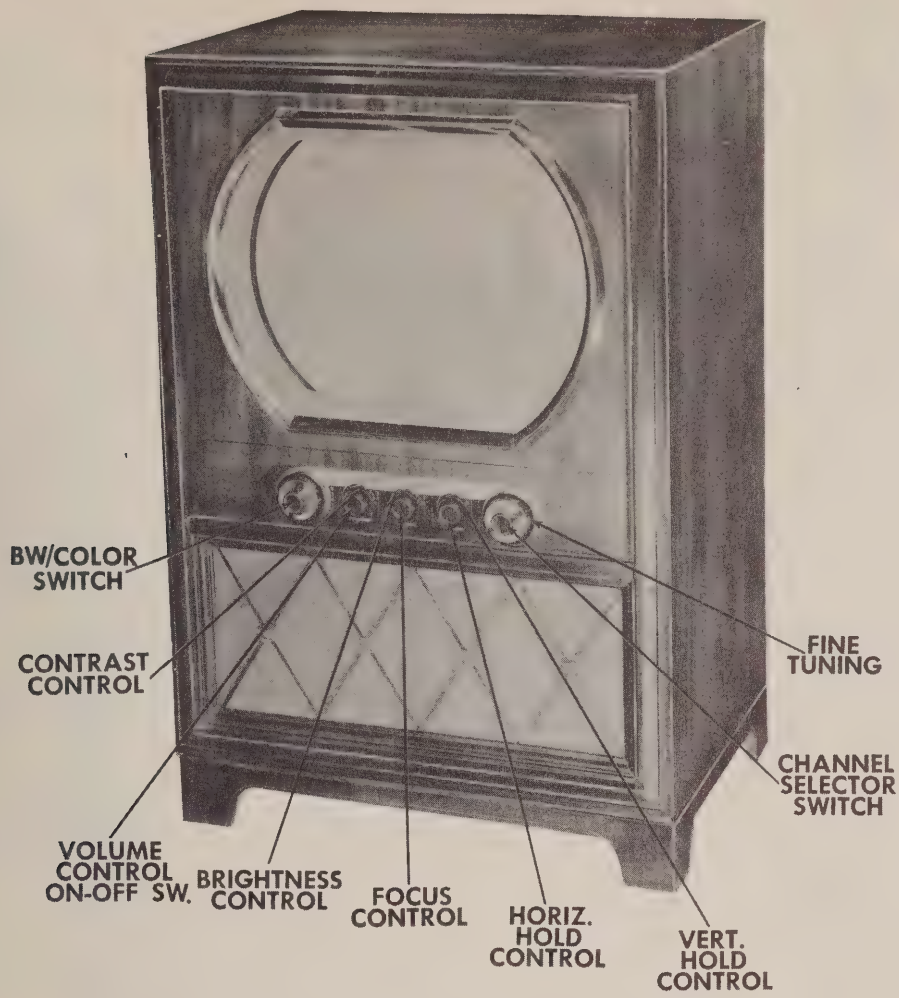

HALLICRAFTERS MODEL 21980

TRADE NAME	Hallicrafters Models 17824A, 17906, 17930, 17931, 17332, 17933, 17934, 20823C, 21923, 21928, 21940, 21980
MANUFACTURER	Hallicrafters Co., 4401 W. 5th Ave., Chicago 24, Ill.
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.75 Amp @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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HALLICRAFTERS MODELS 17824A, 17906, 17930, 17931, 17932, 17933, 17934, 20823C, 21923, 21928, 21940, 21980

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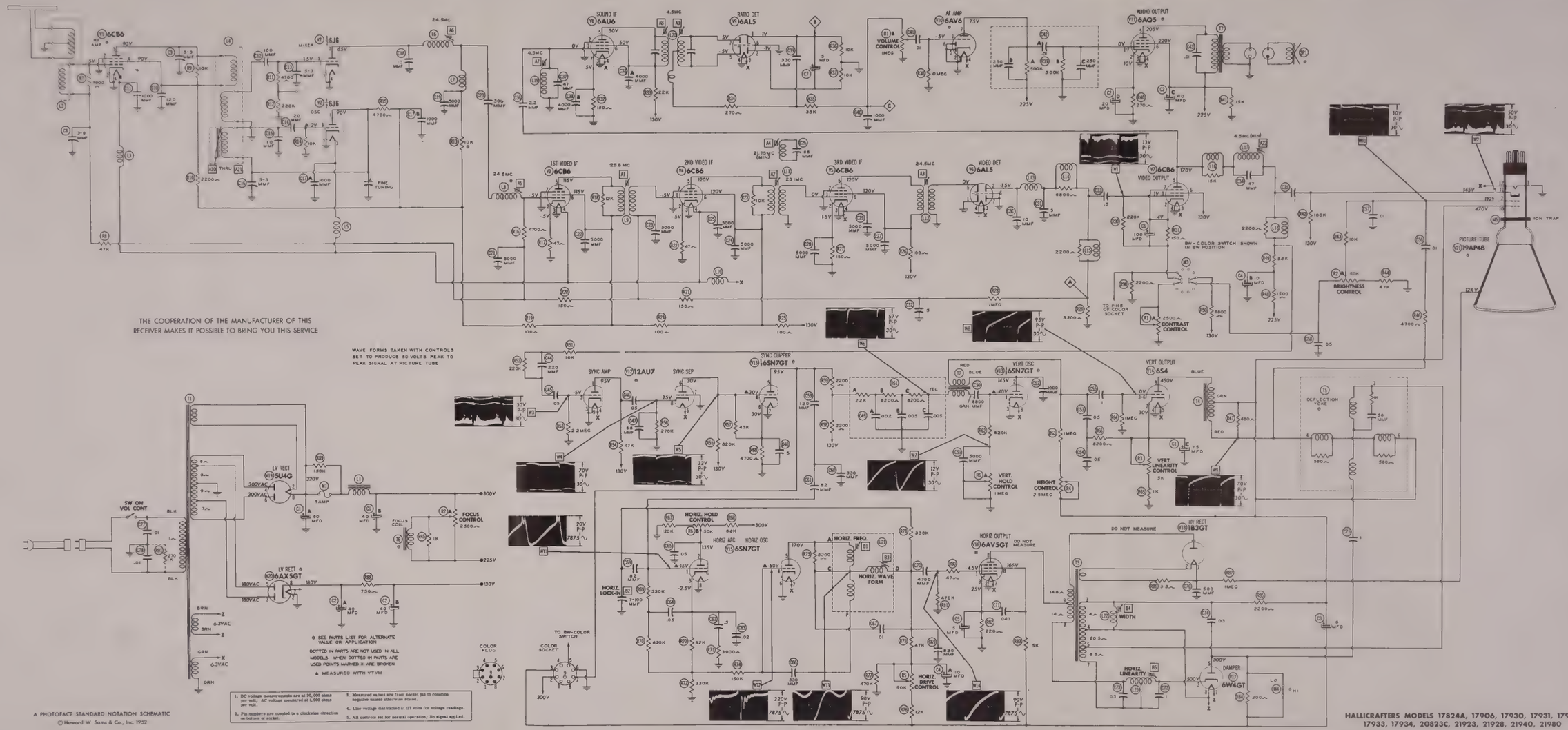
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
SW ON VOL CONT
LV RECT V19 5U4G
LV RECT V20 6AX5GT
FOCUS COIL
FOCUS CONTROL 2,500
TO 8W-COLOR SWITCH
COLOR SOCKET
COLOR PLUG
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
MEASURED WITH VTVM
1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise stated.
3. Pin numbers are counted in a clockwise direction on bottom of socket.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.
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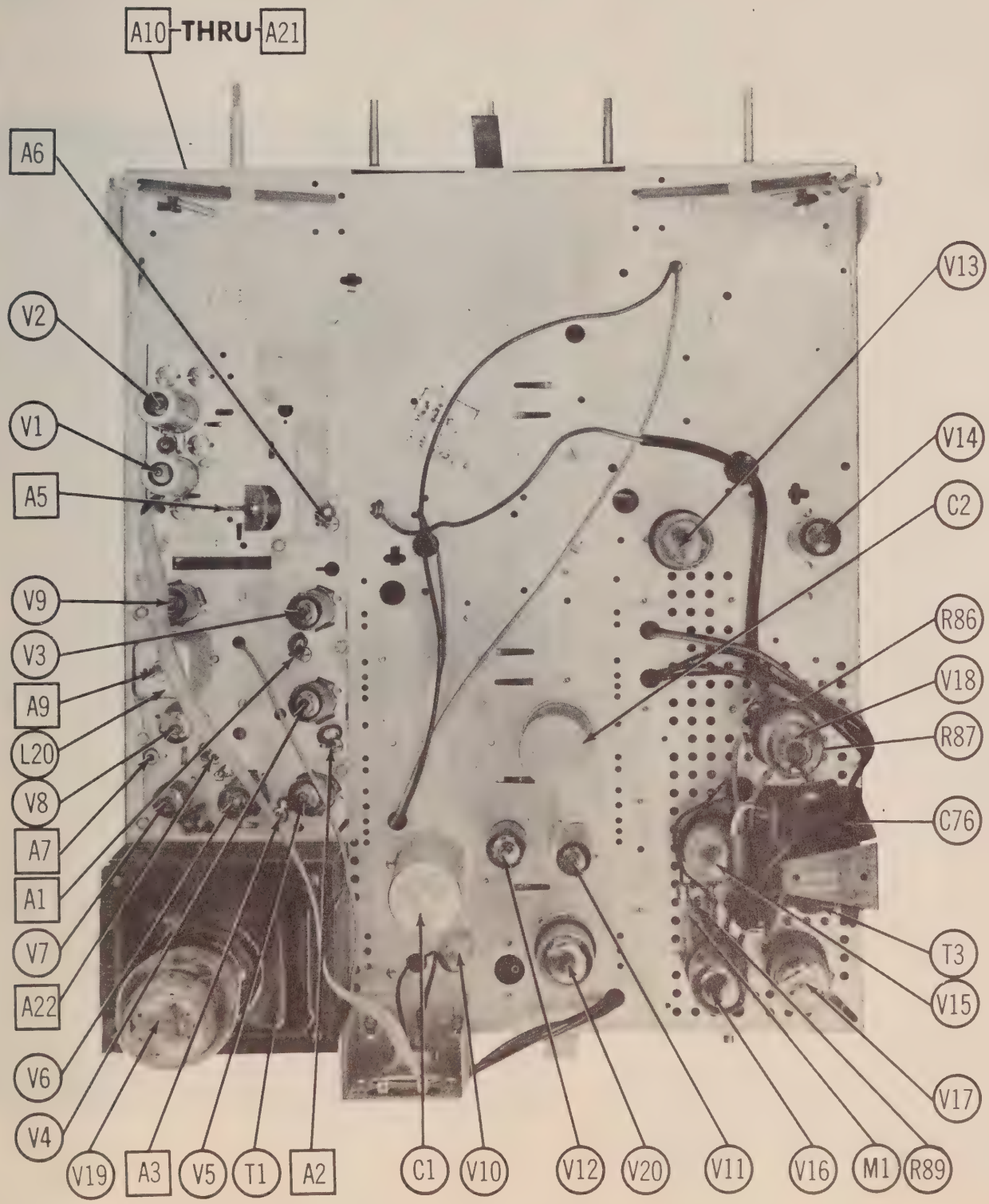
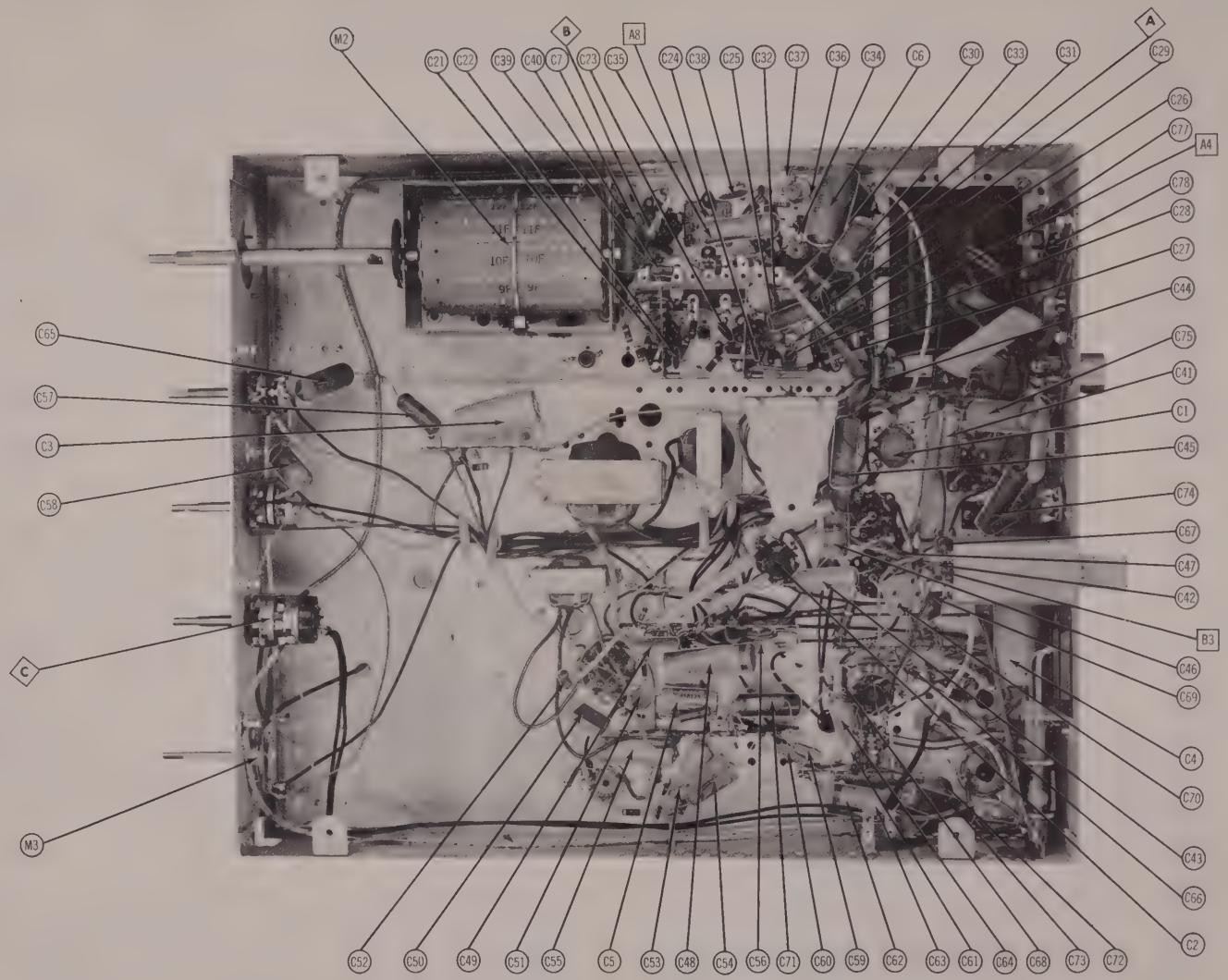


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V15), from its socket.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded lead of a C32, connect the positive lead to chassis. Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25.6MC (unmod)	Any	DC probe to point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	24.5MC	"	"	A3	"
4.	"	"	21.75MC	"	"	A4	Adjust for MINIMUM deflection.
5.	"	"	24.5MC	"	"	A5	Hold channel switch between channels while adjusting A5 for maximum deflection.
6.	"	"	"	"	"	A6	Connect a 1000Ω resistor across R16. Adjust A6 for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	24MC (10MC swp.)	21.75MC 26.25MC	Any	Vert. amp. to Point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A6 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to pin 1, (grid) of 6CB6, (V7). Low side to chassis.	4.5MC (unmod)	Any	DC probe to point (B). Common to chassis.	A7, A8.	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point (C). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120 sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to Pin 1, (grid), of 6CB6, (V7). Low side to chassis.	4.5MC (450KC Swp.)	4.5MC	Any	Vert. amp. to Point (B). Low side to chassis.	A7, A8	Disconnect stabilizor capacitor C7. Adjust for maximum amplitude & symmetry as per Fig. 2.
9.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A9	Reconnect capacitor C7. Adjust A9 so 4.5MC occurs at center of crossover lines as per Fig. 3. SLIGHTLY retouch A8 for maximum amplitude & straightness of crossover lines.

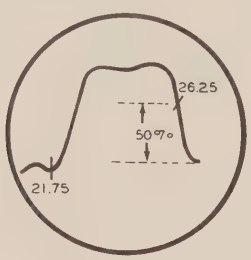


FIG.1

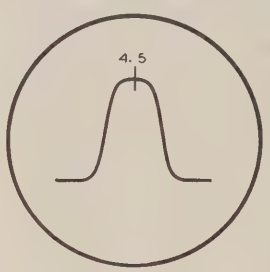


FIG. 2

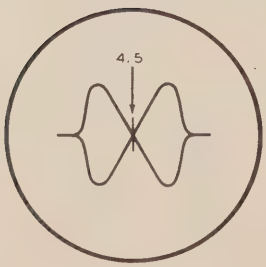


FIG. 3

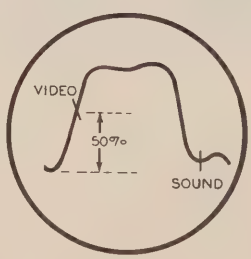


FIG.4

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point (A) Low side to chassis.	A10	Adjust to place sound marker in "notch" as shown in fig. 4. The video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	185.25MC 187.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

THE RF & MIXER PORTION OF THIS RECEIVER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE.
ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD.

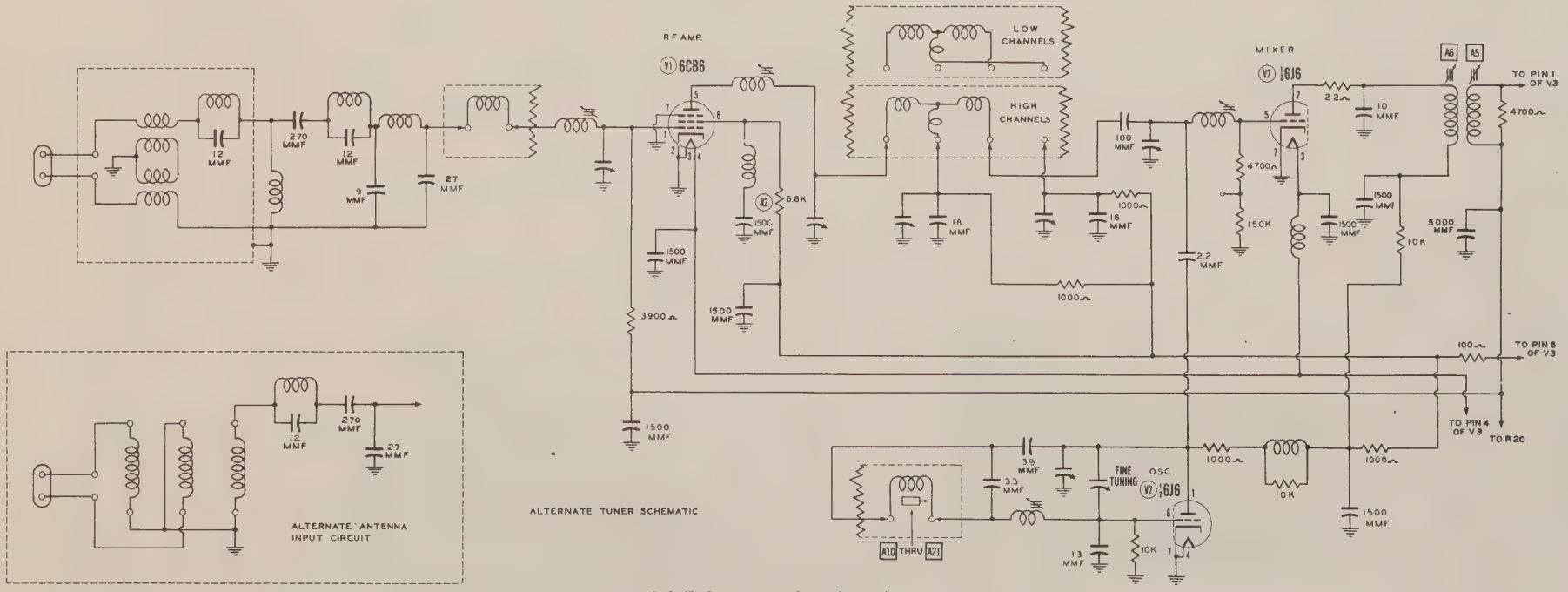
4.5MC TRAP ADJUSTMENT

After alignment is completed and set restored to normal operation, tune in a strong TV station and adjust the fine tuning control until sound just begins to appear in the picture. Examine the picture for evidence of 4.5MC interference, (grain appearance in horizontal lines). If interference is noted adjust the 4.5MC trap, (A22), to eliminate it.

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CBβ	1Meg	0Ω	.1Ω	0Ω	■3.2KΩ	■3.2KΩ	0Ω		
V 2	6J6	■5.7KΩ	■11KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	47Ω	0Ω	.1Ω	■950Ω	■950Ω	0Ω		
V 4	6CB6	1Meg	47Ω	0Ω	.1Ω	■850Ω	■850Ω	0Ω		
V 5	6CB6	.2Ω	150Ω	0Ω	.1Ω	■850Ω	■850Ω	0Ω		
V 6	6AL5	0Ω	3.3KΩ	.1Ω	0Ω	.3Ω	0Ω	0Ω		
V 7	6CB6	220KΩ	400Ω	.1Ω	0Ω	†8.5KΩ	■750Ω	400Ω		
V 8	6AU6	1.1Ω	0Ω	0Ω	.1Ω	■22KΩ	■22KΩ	150Ω		
V 9	6AL5	10KΩ	10KΩ	.1Ω	0Ω	1Meg	0Ω	1Meg		
V 10	6AV6	10Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†500KΩ		
V 11	6AQ5	500KΩ	270Ω	0Ω	.1Ω	†1.7KΩ	†1.4KΩ	500KΩ		
V 12	12AU7	■47KΩ	2.2Meg	0Ω	.1Ω	.1Ω	50KΩ	0Ω	270KΩ	0Ω
V 13	6SN7GT	1.3Meg	#1.8Meg	0Ω	50KΩ	■5.1KΩ	4.7KΩ	0Ω	.1Ω	
V 14	6S4	INF	2.8KΩ	1Meg	0Ω	.1Ω	1Meg	INF	INF	#3.8KΩ
V 15	6SN7GT	1.5Meg	†74KΩ	410KΩ	480KΩ	†85KΩ	0Ω	.1Ω	0Ω	
V 16	6AV5GT	470KΩ	0Ω	220Ω	INF	#24Ω	INF	.1Ω	†15KΩ	
V 17	6W4GT	INF	INF	2Meg	INF	†85Ω	INF	#26Ω	#26Ω	
V 18	1B3GT	PINS 1-8 HAVE INF RESISTANCE								Top Cap #170Ω
V 19	5U4G	INF	13KΩ	INF	15Ω	INF	16Ω	INF	13KΩ	
V 20	6AX5GT	#32Ω	0Ω	9Ω	50KΩ	9Ω	#32Ω	.1Ω	60KΩ	
V 21	19AP4B	0Ω	50KΩ	Pin 10 #2.2KΩ	Pin 11 ■100KΩ	Pin 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V19
■ MEASURED FROM PIN 8 OF V20
MEASURED FROM PIN 3 OF V17
Hi-Low Line SW in Low Line Position



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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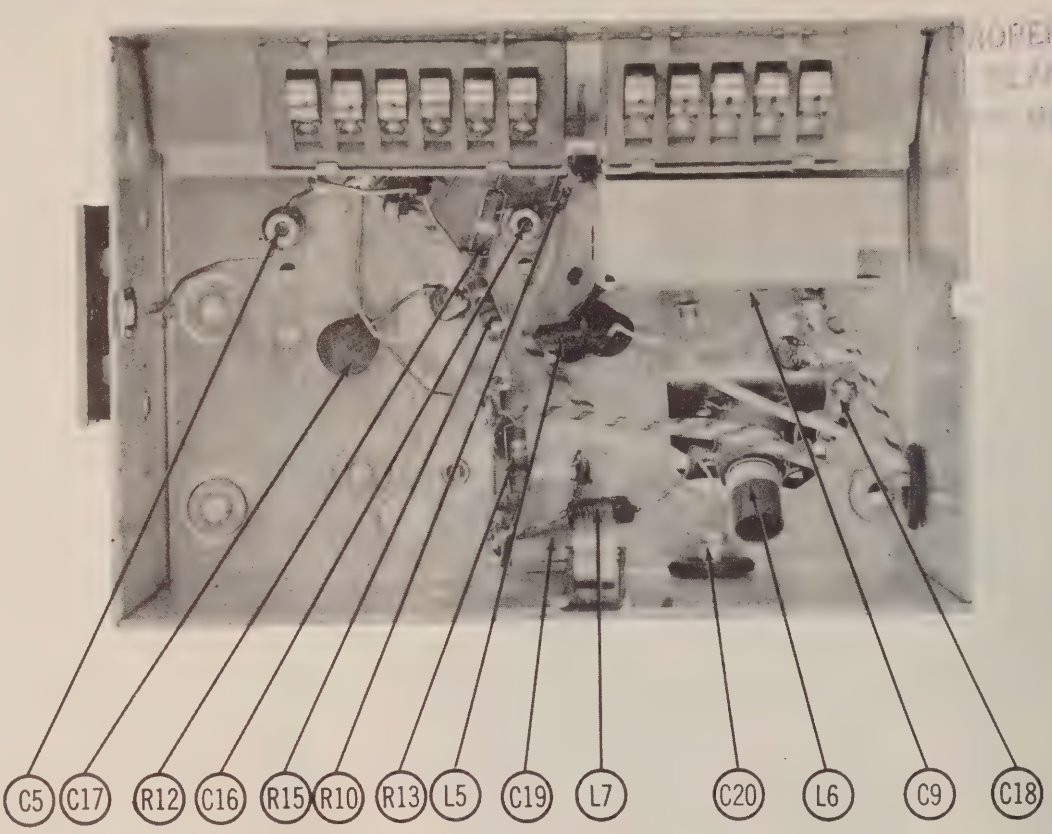
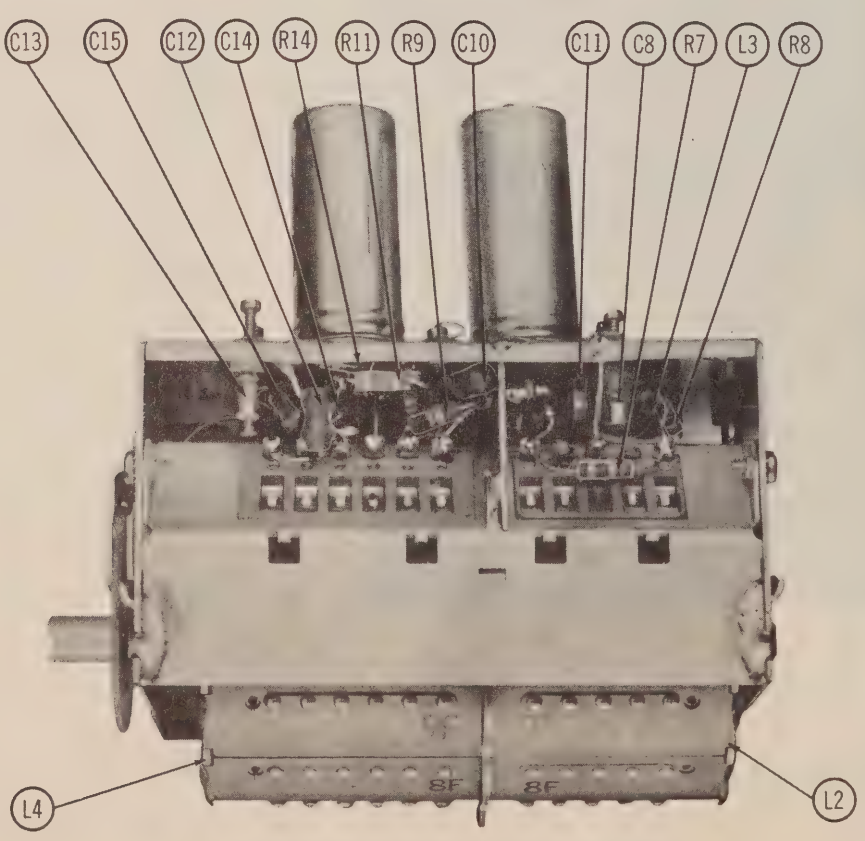
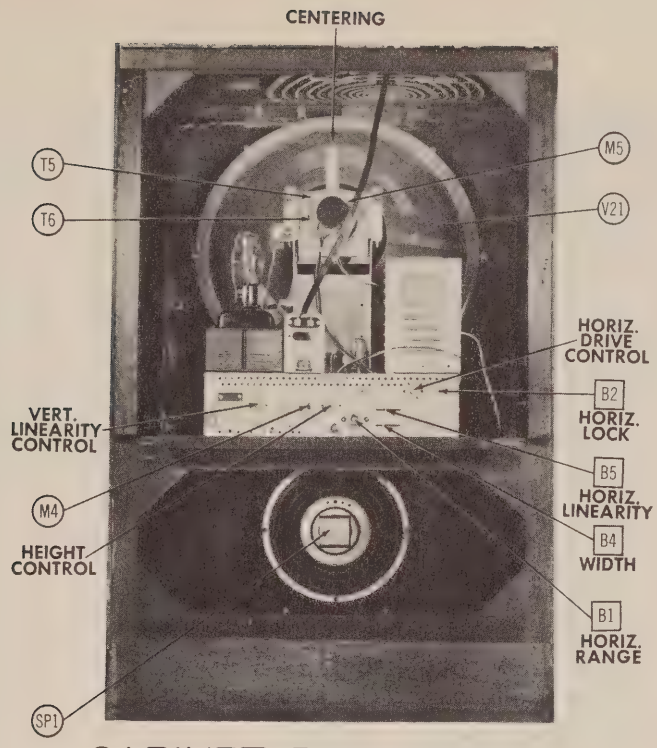
ALTERNATE TUNER SCHEMATIC



RF TUNER-BOTTOM VIEW



RF TUNER-RIGHT SIDE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to fully clockwise.

Adjust the horizontal range slug, (B1), until the blanking bar begins to move into the picture from the left.

Turn the hold control to fully counter-clockwise and momentarily interrupt the signal by switching to another channel and back again.

If more than 4 bars are present turn the horizontal lock trimmer, (B2), slightly clockwise. If less than three bars are present adjust B2 slightly counter-clockwise.

Repeat the check and adjustment of B2 until 3 to 4 bars are present.

Turn the hold control clockwise to synchronize the picture.

Connect the vertical input lead of an oscilloscope thru a 47KΩ resistor to terminal C of L21.

Adjust the waveform slug, (B3), until the broad and narrow peaks of the waveform on the oscilloscope are of equal height as shown in fig. 5. If necessary during adjustment of B3, adjust B1 to keep the picture synchronized.

Repeat the adjustment of B1 and B2.

Adjust the horizontal drive control clockwise as far as possible without crowding or vertical lines appearing in the picture.

Adjust the width slug, (B4), until the picture is slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal linearity slug, (B5), until the picture is synmetrical from left to right.

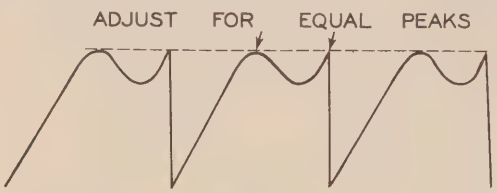


FIG. 5

DISASSEMBLY INSTRUCTIONS

1. Remove 9 push-on type control knobs from front panel.
2. Remove 8 screws from rear cover. Remove cover.
3. Disconnect built-in antenna.
4. Disconnect speaker plug.
5. Remove 4 nuts holding speaker. Remove speaker.
6. Remove 5 chassis bolts. Remove chassis.

Note: For picture tube removal it is necessary to remove chassis as outlined above.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: Hallicrafters PART No	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	90X6CB6	6CB6	7CH	
B	RF Amplifier	90X6AG5	6AG5	7BD	
V2	Converter	90X6J6	6J6	7BF	
V3	1st. Video IF Amp.	90X6CB6	6CB6	7CH	
V4	2nd. Video IF Amp.	90X6CB6	6CB6	7CH	
V5	3rd. Video IF Amp.	90X6CB6	6CB6	7CH	
V6	Video Detector	90X6AL5	6AL5	6BT	
V7	Video Output	90X6CB6	6CB6	7CH	
V8	Sound IF Amp.	90X6AU6	6AU6	7BK	
V9	Ratio Detector	90X6AL5	6AL5	6BT	
V10A	AF Amplifier	90X6AV6	6AV6	7BT	
B	AF Amplifier	90X6SQ7	6SQ7	6Q	
V11	Audio Output	90X6AQ5	6AQ5	7BZ	
V12A	Sync. Amplifier Sync. Seperator	90X12AU7	12AU7	9A	
B	Sync. Amplifier Sync. Seperator	90X6SN7GT	6SN7GT	8BD	
V13A	Sync. Clipper Vert. Oscillator	90X6SN7GT	6SN7GT	8BD	
B	Sync. Clipper Vert. Oscillator	90X12AU7	12AU7	9A	
V14	Vert. Output	90X6S4	6S4	9AC	
V15	Horiz. AFC - Horiz. Oscillator	90X6SN7GT	6SN7GT	8BD	
V16A	Horiz Output	90X6AV5GT	6AV5GT	6CK	
B	Horiz. Output	90X6AU5GT	6AU5GT	6CK	
V17	Damper	90X6W4GT	6W4GT	4CG	
V18	HV Rectifier	90X1B3GT	1B3GT	3C	
V19	LV Rectifier	90X5U4G	5U4G	5T	
V20A	LV Rectifier	90X6AX5GT	6AX5GT	8S	
B	LV Rectifier	90X6X5	6X5	6S	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: Hallicrafters PART No	REPLACEMENT DATA: SYLVANIA TYPE	RTMA BASE TYPE	NOTES
V21A	19AP4B	19AP4B	12D	Used in Model 21980 only
B	20CP4	20CP4	12D	Used in Models 21940, 21928, 21923, 20823C
C	17CP4	17CP4	12D	Used in Models 17934, 17933, 17932, 17931, 17930
D	17BP4A	17BP4A	12D	Used in Models 17906, 17834-A

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	60	450	45B173	CAFH3-61		UPT62245			TVL-2770
B	40	450		PRS50/100		BRH501			TVA-1310
C	75	50							
C2A	40	450	45B174	CAFH3-44		UP4445C			TVL-4739
B	40	250		PRS25/25		BRH045			
C	40	250							
D	20	25							
C3	8	475	45A103	PRS500/8		BR850A			TVA-1902
C4A	10	450	45A172	PRS450/10-10		BRDH45A			TVA-2722
B	10	450							
C5	5	50	45B175	PRS150/4		BR550			TVA-1303
C6	100	10	45B170	PRS12/100		BRH121A			TVA-1130
C7	5	50	45B175	PRS150/4		BR550			TVA-1303
C8	3-9				829-10				Variable Trimmer
C9	.5-3				829-5				Variable Trimmer
C10	120			SI120		D6-121	TM5T12	GP2K-121	5GA-T12
C11	1000			SI1000		D6-102	TM5D1	GP2L-102	5HK-D1
C12	100			SI100		D6-101	TM5T1	GP1K-101	5GA-T1
C13	.5-3					829-3			Variable Trimmer
C14	10			SI10NP0		TCZ-20		NP0K-200	
C15	10			SI10NT50		TCN-10		N750K-100	5TCU-Q1
C16	.5-3					829-3			Variable Trimmer
C17A	1000			BPD-3X001		DD-2-102	TM5DD1	S12-001	5HK-2D1
B	1000								
C18	10			SI10NP0		TCZ-10		NP0K-100	5TCC-Q1
C19	5000		47A168	BPD-005		DD-502	TM5D5	GP2L-502	5HK-D5
C20	300			SI300		D6-301		GP2K-301	
C21	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C22	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C23	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C24	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C25	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C26	68							N750K-680	5TCU-Q68
C27	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C28	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C29	5000		47A168	BPD-005		DD-502	TM5D5	B11-005	5HK-D5
C30	10		47B310100K3	SI10		D6-100	5W5Q1	GP1K-100	5GA-Q1
C31	5		47B30050K5	SI5		TCZ-4	5W5Y5	GP1K-050	
C32	.8	25	46A177	P288-5			P7J5		2TM-P5
C33	5	100	46A177	P288-5			P7J5		2TM-P5
C34	47			SI47NT50		TCN-47		N750K-470	5TCU-Q47
C35	.1	200	46AU104J	P288-1		DF-104	P12P1		Video Coupling
C36	3.2		47A180-4			TCZ-3.2		NP0K-3R2	Sound IF Coupling
C37	47			SI47NT50		TCN-47		N750K-470	5TCU-Q47
C38A	4000		47A218	BPD-3X004		DD-402	TM5DD4	S22-004	Fixed Trimmer
B	4000					DD-402			Sound IF Decoupling
C39	330		47B20A331M5	SI330		D6-331		GP2K-331	Sound IF Cathode
C40	1000		47B20A102M5	SI1000		D6-102	TM5D1	GP2L-102	Diode Load Cap.
C41	.01	600	46A7103J	P688-01		D6-103	PTE5S1	GP2-333-103	De-emphasis
C42A	.01								5HK-D1
B	.250		46A0I7			† PC-80			Audio Coupling
C									†102C1
									AF Amp. Plate Bypass
									Audio Output Grid
C43	.01	600	46A7103J	P688-01		D6-103	PTE5S1	GP2-333-103	6TM-S1

CAPACITORS (CONT.)

ITEM No	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Hallicrafters PART No	AEROVOX PART No	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No	SPRAGUE PART No	IDENTIFICATION CODES AND INSTALLATION NOTES
C44	220	500	47X20B221K	1468-00025	D6-251	SWST25	GP2K-251	1FM-325	Sync. Coupling
C45	.05	600	46A Y503J	P688-05	DF-503	PTE6S5		6TM-S5	Sync. Coupling
C46	.05	600	46A Y503J	P688-05	DF-503	PTE6S5		6TM-S5	Sync. Coupling
C47	68		47B20680K5	SI68	D6-680		GP1K-680	5GA-Q68	Sync. Amp. Cathode
C48	.5	200	46AX104J	P288-5			P7J5	2TM-P5	Sync. Clipper Cathode
C49A	.002			P688-002			GP2-333-202		Vert. Integrator Net.
B	.005		+ 49A015	P688-005	+PC-100	PTE6D5	GP2-333-502	+ 101C1	Vert. Integrator Net.
C	.005			P688-005		PTE6D5	GP2-333-502		Vert. Integrator Net.
C50	6800	500	47X35B682K					MS-27	Vert. Osc. Grid Cap.
C51	5000		47A168	BPD-005	DD-502	TM5D5	B11-005	5HK-D5	Vert. Hold Bypass
C52	1000		47B20A102M5	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	Vert. Osc. Plate
C53	.05	600	46BH473L6	P688-05	DF-503	PTE6S5		6TM-S5	Vert. Discharge
C54	.05	200	46AU503J	P288-05	DF-503	PJ5S5		2TM-S5	RF Bypass
C55	.1	600	46AX104J	P688-1	DF-104	PTE6P1		6TM-P1	Vert.Sweep Coupling
C56	.01	600	46A Y103J	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Vert. Sweep Coupling
C57	.01	600	46A Y103J	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Integrator Net.
C58	.05	600	46A Y503J	P688-05	DF-503	PTE6S5		6TM-S5	RF Bypass
C59	120	500	47X20B121K	1468-00015	D6-121	SWST15	GP2K-121	1FM-315	Horiz. Sync. Coupling
C60	330	500	47X20B331K	1468-00035					Voltage Divider
C61	82	500	47X20B830K	SI82			GP1K-820		Horiz. Sync. Coupling
C62	.5	200	46AT504J	P288-5		PJ5P5		2TM-P5	Horiz. AFC Filter
C63	.02	600	46AY203J	P688-02	DF-203	PTE6S2		6TM-S2	Horiz. AFC Filter
C64	.05	600	46AY503J	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. AFC Filter
C65	.05	600	46AY503J	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. AFC Plate
C66	330	500	47X20B331K	1468-00035					Horiz. Osc. Grid Cap.
C67	.01	400	47A224	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Fixed Trimmer
C68	82	500	47X20B820K						Horiz. Feedback
C69	820	500	47X25B821K						Horiz. Discharge
C70	4700	500	47X35B472K	1467-005	D6-472	1D5D5	GP2-333-472	1FM-25	Horiz. Sweep Coupling
C71	.047	800	46AY503J	P688-047	DF-503	PTE6S47		6TM-S47	Horiz. Output Screen
C72	.1	600	46AX104J	P688-1		PTE6P1		6TM-P1	Damper Filter
C73	.03	600	46AY303J	P688-03		PTE6S3		6TM-S3	Damper Filter
C74	.03	600	46AY303J	P688-03		PTE5S3		6TM-S3	Horiz. Sweep Coupling
C75	.1	600	46AX104J	P688-1	DF-104	PTE6P1		6TM-P1	Horiz. Sweep Coupling
C76	500	10000	47A223	MV20C	TV3-502	MM-C20T5			HV Filter
C77	.01	600	46A178	689ZGXY		PJ6S1		6TM-S1	Line Filter
C78	.01	600	46A178	689ZGXY		PJ6S1		6TM-S1	Line Filter

† Items C42A, C42B, C42C, R39A, R39B are combined in one unit.
When replacing items seperately, C42B and C42C should total 250MMF
* Items C48A, C48B, C48C, R8A, R8B, R8C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2500Ω	1	25B898		RTV-234	SBB-614-S	Contrast Control - Panel
B	1Meg	1					Volume Control & Sw Rear
R2A	2500Ω	2	25B895		RTV-235		Focus Control - Wire Wound - Panel
B	50KΩ	1					Brightness Control - Rear
R3A	5000Ω	1	25B912	QU-114	AG-19-S	AN-10	Vert. Linearity Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R3A per instructions.
R4A	2.5Meg	½	25B911	QU-239	AG-94-S	AN-83	Height Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R4A per instructions.
R5A	50KΩ	½	25A858	QU-123	AG-44-S	AN-31	Horiz. Drive Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R5A per instructions.
R6A	1Meg	1	25B917	"Concentrikit" BU-137 * BU-123 * R202 *	RTV-40	SBB-688	Vert. Hold Control - Panel
B	50KΩ						Horiz. Hold Control - Rear
C	Shaft End		Not Req.		Not Req.	Not Req.	Attach per instructions in "Concentrikit"

* Additional parts to be used with "Concentrikit"

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R7	3300Ω	1		BTS-3900	Antenna Coil Shunt
R8	47KΩ	1		BTS- 47K	AGC Network
R9	10KΩ	1			RF Coil Shunt
R10	2200Ω	20%		BTS-2200	RF Amp. Decoupling
R11	4700Ω	1		BTS-4700	Mixer Grid
R12	220KΩ	20%		BTS-220K	Mixer Grid
R13	10KΩ	1			Mixer Plate - See Note 1
R14	10KΩ	20%		BTS-10K	Osc. Grid
R15	4700Ω	1		BTS-4700	Osc. Plate
R16	4700Ω	1	23X20X472K	BTS-4700	1st. Video IF Amp. Grid
R17	47Ω	1	23X20X470K		1st. Video IF Amp. Cathode
R18	12KΩ	1	23X20X123K		2nd. Video IF Coil Shunt
R19	100Ω	1	23X20X101K	BTS-100	Decoupling
R20	150Ω	1	23X20X151K	BTS-150	AGC Network
R21	150Ω	1	23X20X151K	BTS-150	AGC Network
R22	47Ω	1	23X20X470K		2nd. Video IF Amp. Cathode
R23	10KΩ	1	23X20X103K		3rd.Video IF Coil Shunt
R24	100Ω	1	23X20X101K	BTS-100	Decoupling
R25	100Ω	1	23X20X101K	BTS-100	Decoupling
R26	100Ω	1	23X20X101K	BTS-100	Decoupling
R27	150Ω	1	23X20X151K	BTS-150	3rd. Video IF Amp. Cathode
R28	1Meg	1	23X20X105M	BTS-1Meg	AGC Network
R29	3300Ω	1	23X20X332K	BTS-3300	Video Det. Diode Load
R30	220KΩ	1	23X20X224K	BTS-220K	Video Amp. Grid
R31	150Ω	1	23X20X151K	BTS-150	Video Amp. Cathode
R32	150Ω	1	23X20X151K	BTS-150	Sound IF Amp. Cathode
R33	22KΩ	1	23X20X223K		Sound IF Amp. Decoupling
R34	270Ω	1	23X20X271K	BTS-270	Balancing
R35	33KΩ	1	23X20X333K	BTS-33K	De-emphasis
R36	10KΩ	5%	23X20X103J	BTS-10K 5%	Ratio Det. Diode Load
R37	10KΩ	5%	23X20X103J	BTS-10K 5%	Ratio Det. Diode Load
R38	10Meg	1	23X20X106M	BTS-10Meg	AF Amp. Grid
R39A	500KΩ		† CRL-102		AF Amp. Plate
B	500KΩ				Output Grid
R40	270Ω	1	23X30X271K	BTA-270	Output Cathode
R41	15KΩ	10	24A922	1 3/4A-15K	Bleeder - Wire Wound

RESISTORS (CONT.)

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	IDENTIFICATION CODES
R42	100KΩ	1	23X20X104M	BTS-100K	Picture Tube Cathode
R43	.0KΩ	1	23X20X103S	BTS-10K	Picture Tube Grid
R44	47KΩ	1	23X20X473K	BTS-47K	Voltage Divider
R45	1000Ω	5	24A921	1 3/4A-1000	Focus Control-Shunt - Wire Wound
R46	4700Ω	1	23X20X472K	BTS-4700	Vert. Blanking Network
R47	680Ω	1	23X20X681M	BTS-680	Vert. Damping
R48	1500Ω	1	23X30X152K	BTA-1500	Decoupling
R49	5600Ω	2	23X40X562K	BTB-5600	Video Amp. Plate
R50	6800Ω	1	23X20X682K	BTS-6800	Voltage Divider
R51	100Ω	1	23X20X103S	BTS-10K	Isolation
R52	220KΩ	1	23X20X224M	BTS-220K	Isolation
R53	2.2Meg	20%	23X20X225M	BTS-2.2Meg	Sync. Separator Grid
R54	47KΩ	2	23X20X473K	BTS-47K	Sync. Separator Plate
R55	820KΩ	1	23X20X824M	BTS-820K	Sync. Amp. Plate
R56	270KΩ	20%	23X20X274M	BTS-270K	Sync. Amp. Cathode
R57	47KΩ	1	23X20X473K	BTS-47K	Sync. Clipper Grid
R58	2200Ω	1	23X20X222K	BTS-2200	Sync. Clipper Plate
R59	2200Ω	1	23X20X222K	BTS-2200	Sync. Clipper Plate
R60	4700Ω	1	23X30X473K	BTS-4700	Sync. Clipper Cathode
R61A	22KΩ	1		BTS-22K	Integrator Network
B	820Ω	1	* CRL-101	BTS-8200	Integrator Network
C	820Ω	1		BTS-8200	Integrator Network
R62	820KΩ	1	23X20X824K	BTS-820K	Vert. Osc. Grid
R63	1Meg	20%	23X30BF105M	BTA-1Meg	Vert. Osc. Plate
R64	1Meg	1	23X20X105M	BTS-1Meg	Vert. Amp. Grid
R65	1000Ω	1	23X30X102K	BTS-1000	Vert. Amp. Cathode
R66	8200Ω	1	23X20X822K	BTS-8200	Voltage Divider
R67	120KΩ	1	23X30BF124K	BTA-120K	Voltage Divider
R68	68KΩ	1	23X20X683K	BTS-68K	Horiz. AFC Plate
R69	330KΩ	1	23X20X334K	BTS-330K	Horiz. AFC Grid
R70	820KΩ	1	23X20X824K	BTS-820K	Horiz. AFC Grid
R71	3900Ω	1	23X20X392K	BTS-3900	Horiz. AFC Filter
R72	330KΩ	5%	23X30BF334J	BTA-330K 5%	Horiz. AFC Cathode
R73	82KΩ	1	23X30X823K	BTA-82K	Horiz. AFC Cathode
R74	150KΩ	1	23X20X154K	BTS-150K	Horiz. Osc. Grid
R75	8200Ω	1	23X20X822K	BTS-8200	Transformer Shunt
R76	12KΩ	1	23X20X123K	BTS-12K	Voltage Divider
R77	470KΩ	20%	23X20X474M	BTS-470K	Voltage Divider
R78	330KΩ	1	23X20X334K	BTS-330K	Horiz. AFC Feedback
R79	47KΩ	1	23X30BF473K	BTA-47K	Horiz Osc. Plate
R80	47Ω	1	23X20X470K		Parasitic Suppressor
R81	470KΩ	20%	23X20X474M	BTS-470K	Horiz. Output Grid
R82	320Ω	3	24A925		Horiz. Output Cathode - Wire Wound
R83	15KΩ	2	23X40X153K	BTB-15K	Horiz. Output Screen
R84	200Ω	5	24A926	1 3/4A-200	Damper Plate - Wire Wound
R85	2200Ω	1	23X30X222K	BTA-2200	Decoupling
R86	3.3Ω	1	23X20X033X		HV Rectifier Filament
R87	1Meg	1	23X30X105M		HV Filter
R88	750Ω	10	24A920	1 3/4A-750	Filter - Wire Wound
R89	150KΩ	1	23X20X154M	BTS-150K	Fuse Shunt
R90	2200Ω	1	23X20X222K	BTS-2200	Video Amp. Cathode
R91	270KΩ	1	23X20X274M	BTS-270K	Isolation

† Items R39A, R39B, C42A, C42B, C42C are combined in one unit
* Items R61A, R61B, R61C, C49A, C49B, C49C are combined in one unit
Note 1. Some Models use a 15KΩ Resistor in this application

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA: Hallicrafters PART No	STANCOR PART No	MERIT PART No	CHICAGO PART No.
T1	117VAC @ 1.75A	620VCT @ 190ADC Tapped @ 400VCT @ 080ADC	5VAC @ 3A	6.3VAC @ 8.7A SEC. 4 6.3VAC @ 1.2A	52C204		P-3073	

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA: Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T	190Ω	1400Ω	55C115	A-8111	A-3000	TBO-1 ①	Vert. Oscillator Trans.
T3	162Ω	520Ω	55C149	A-8130	HVO-7		Horiz. Output Trans.
	Tapped @ 14Ω	Tapped @ 8.5Ω & 29Ω SEC. 2					
T4	1600Ω	9Ω	55B151	A-8141	A-3039		Vert. Output Trans.
	Tapped @ 5Ω						
T5A	1Ω		55C197	DY-9	MDF-70		Horiz. Deflection Coils
B	45Ω		55-237 ②				Vert. Deflection Coils
T6	1000Ω		51A1287 51-1372 ③ 51B1346 ④				Focus Coil

① Mount on top of Chassis.
② Alternate Deflection Yoke
③ Alternate Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA: Hallicrafters PART No.	STANCOR PART No	MERIT PART No	CHICAGO PART No.	INSTALLATION NOTES
T7	4.1KΩ	3.5Ω	280Ω	.5Ω	55B150	A-3825 ①	A-3019 ④	RO-302 ⑤	① Drill New Mounting Holes ② Cut Mounting Tabs to Duplicate Original.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	Hallicrafters PART No.	VIKING PART No.	QUAM PART No.	
SP1A	P.M.	3.5Ω	85C106	10J12	10A4A	
SP2A	P.M.	3.5Ω	85C104	8J9	8A21	
SP3A	P.M.	3.5Ω	85C103	5J4	5A1	
	CONE DIA.	V. C. DIA.				
SP1B	10"	3/4"				
	8"	9/16"				
	5"	9/16"				

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, COLORADO

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↺)	Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.190ADC	85Ω	1.3 Henries	56C116	C-2327	C-2994 ⑥	TR-4200 ⑥	⑥ Drill One New Mounting Hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Hallicrafters PART No.	MERIT PART No.	
L2	Ant. Coils	0Ω				
L3	Fil. Choke	0Ω				
L4	RF, Mixer Grid & Osc. Coils	0Ω				
L5	Fil. Choke	0Ω				
L6	Conv. Plate	.3Ω				
L7	RF Choke	0Ω				
L8	1st. Video IF	.2Ω		51B1301		Used only with 1D1055 Tuner
L9	2nd. Video IF	.2Ω	.2Ω	50A475		
L10	Fil. Choke	0Ω		53A200		
L11	3rd. Video IF	.2Ω	.2Ω	51B1332 or 50A476		Includes 21.75MC Trap
L12	4th. Video IF	.2Ω	.2Ω	50A477		
L13	RF Choke	2.3Ω		53B008		
L14	Peaking Coil	7.6Ω		51A1256		Wound on 6.8KΩ Resistor
L15	Peaking Coil	11Ω		51A1260		Wound on 2.2KΩ Resistor
L16	Peaking Coil	12Ω		51A1257		Wound on 15KΩ Resistor
L17	4.5MC Trap	1Ω		51B1333 or 50B474		
L18	Peaking Coil	17.5Ω		51A1259		Wound on 2.2KΩ Resistor
L19	Sound IF	1Ω		51B1333 or 50B474		
L20	Ratio Det. Trans.	4Ω	.6Ω	50C473		Tap at .8Ω
L21	Horiz. Osc.	75Ω	45Ω	51B1242		
L22	Width Coil	24Ω		51B1330 or 51B1341	MWC-1	
L23	Horiz. Lin.	5.5Ω		51B1331 or 51B1340		Tap at 1.5Ω

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			Hallicrafters PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Slo-Blo	1/4A. 125V.	39A344		315.250		

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M2A	RF Tuner	1D1055	Complete with Tubes
B	RF Tuner	1D961	Alternate
C	RF Tuner	1A1077	Alternate
D	RF Tuner	1D1088	Alternate
M3A	Switch	60B390	Black & White / color
B	Switch	60B435	Black & White / color
C	Switch	60B428	Black & White / color
M4	Switch	60A249	Hi-Lo-Line
M5	Ion Trap	21A101	
B2	Trimmer	44A391	Horiz. Lock (7-100MMF)
	Knob	15B234	Off/On Volume, Brightness & Horiz. Hold
	Knob	15-451	Off/On Volume, Brightness, & Horiz. Hold
	Knob	15B269	Contrast, Focus, Vert. Hold
	Knob	15-452	Contrast, Focus, Vert. Hold
	Knob	15D293	Channel Selector
	Knob	15D436	Channel Selector
	Knob	15A299	Fine Tuning
	Knob	15D447	Fine Tuning
	Knob	15D454	Black & White / color
	Knob	15-453	Black & White / color
	Knob	15A243	Off/On Volume, Brightness & Horiz. Hold
	Knob	15A458	Off/On Volume, Brightness & Horiz. Hold.
	Knob	15A276	Contrast, Focus, & Vert. Hold
	Knob	15A459	Contrast, Focus & Vert. Hold
	Knob	15D294	Channel Selector — Models 17933 & 17934 only
	Knob	15D237	Channel Selector
	Knob	15D300	Fine Tuning
	Knob	15D448	Fine Tuning

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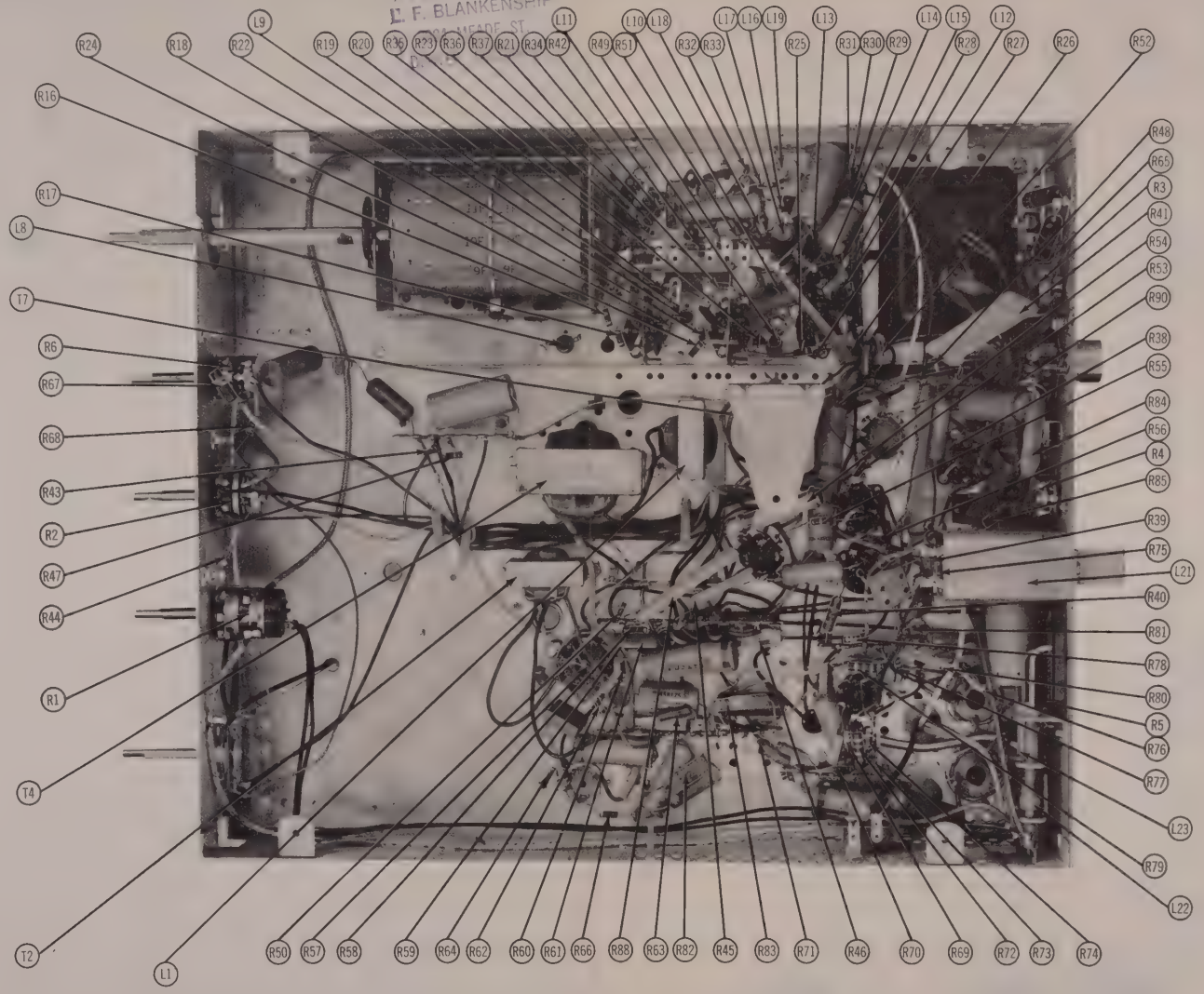

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

MOTOROLA MODELS 17F11, 17K8A, BA, 17K9A, BA, 17K10, M, 17K11A, BA, 17T5A, 17T5C, 17T6BF, F

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MODEL 17F11

MOTOROLA MODELS 17F11, 17K8A, BA, 17K9A, BA, 17K10, M, 17K11A, BA, 17T5A, 17T5C, 17T6BF, F

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DATE 4–52 SET 165 FOLDER 7

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*TRADE MARK

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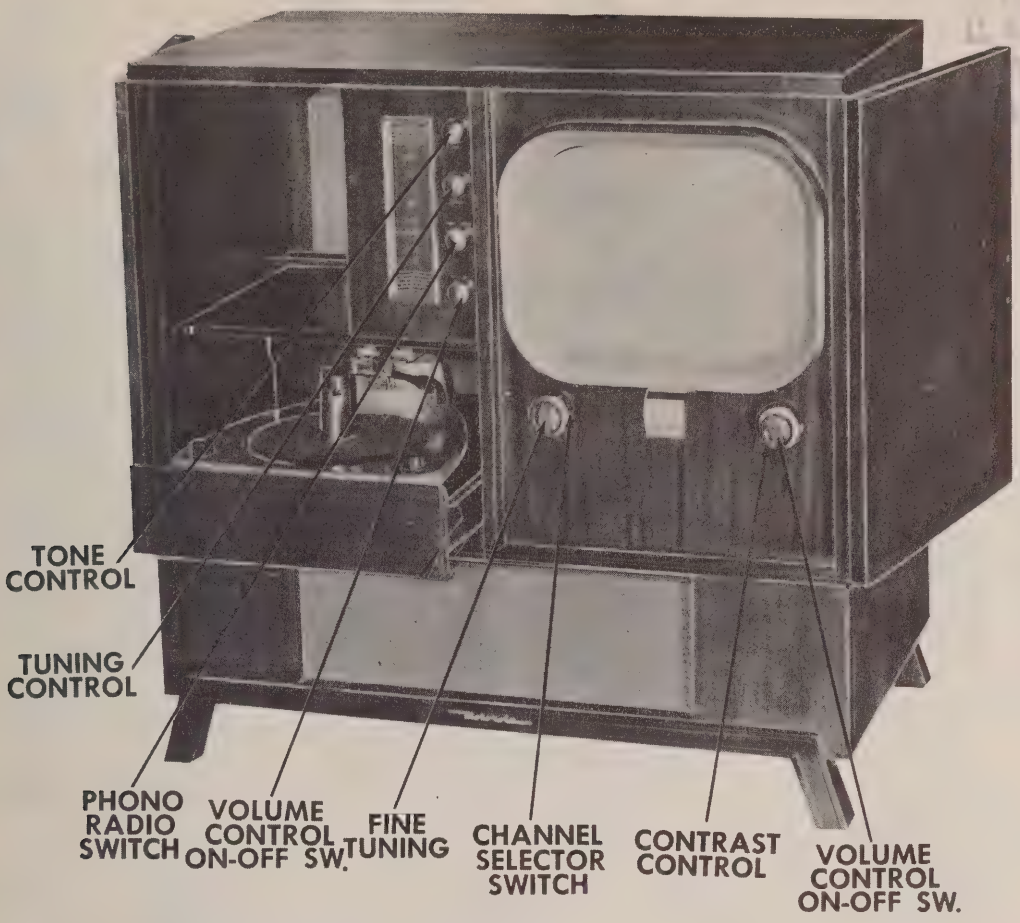

MOTOROLA MODEL 17F11

TRADE NAME	Motorola Models 17F11, (Ch TS-228 & Radio Ch. HS-302), 17K8A, BA, 17K9A, BA, 17K10, M, 17K11A, BA, -
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Ill. (Ch. TS-228), 17T5A (Ch. TS-214) 17T5C, 17T6BF, F, -
TYPE SET	TV-AM-Phono Combination Receiver (Ch. TS-228)
TUBES	Twenty Three
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.2 Amps @ 117 Volts AC
TUNING RANGE	(TV) Channels 2 thru 13 (AM) 535-1600KC

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FOR SERV ICE INFORMATION ON RECORD CHANGER SEE MOTOROLA RC-36A PHOTOFACT SET #147 FOLDER #8.

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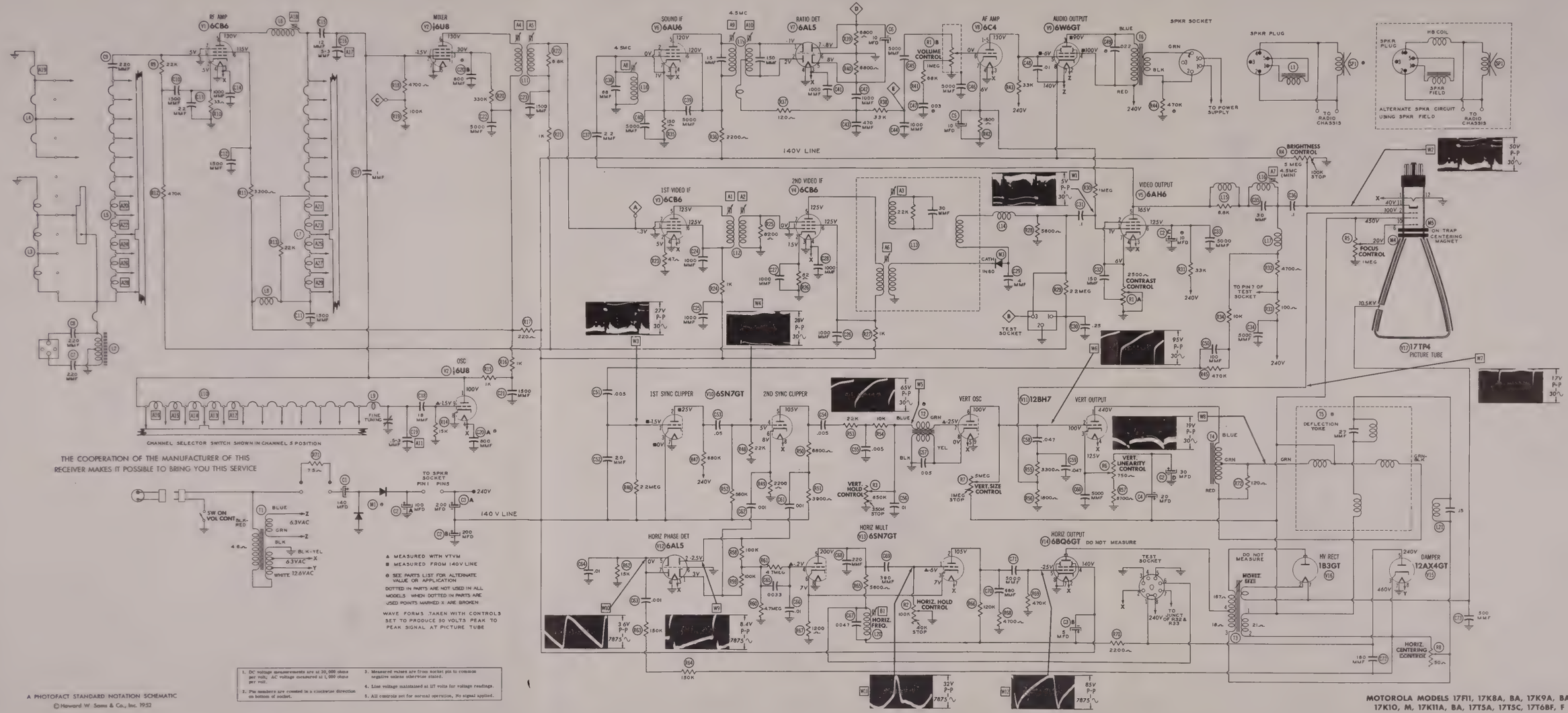
RF AMP V1 6CB6
MIXER V2 6U8
OSC V2 6U8
SOUND IF V6 6AU6
RATIO DET V7 6AL5
AF AMP V8 6C4
AUDIO OUTPUT V9 6W6GT
SPKR SOCKET
SPKR PLUG
HS COIL
ALTERNATE SPKR CIRCUIT USING SPKR FIELD
TO RADIO CHASSIS
TO POWER SUPPLY
VOLUME CONTROL
140V LINE
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
VIDEO OUTPUT V5 6AH6
BRIGHTNESS CONTROL
CONTRAST CONTROL
FOCUS CONTROL
ION TRAP CENTERING MAGNET
V17 17TP4 PICTURE TUBE
1ST SYNC CLIPPER V10 6SN7GT
2ND SYNC CLIPPER
VERT OSC
V11 12BH7 VERT OUTPUT
VERT. HOLD CONTROL
VERT. SIZE CONTROL
VERT. LINEARITY CONTROL
DEFLECTION YOKE
HORIZ PHASE DET V12 6AL5
HORIZ MULT V13 6SN7GT
HORIZ OUTPUT V14 6BQ6GT DO NOT MEASURE
HORIZ. HOLD CONTROL
HORIZ. FREQ.
HORIZ. CENTERING CONTROL
DO NOT MEASURE HORIZ. OUT
HV RECT 1B3GT V16
DAMPER 12AX4GT V15
TEST SOCKET
TO PIN 7 OF TEST SOCKET
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 5 POSITION
FINE TUNING
TO SPKR SOCKET PIN 1 PIN 5
SW ON VOL CONT
140 V LINE
6.3VAC
WHITE 12.6VAC
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
▲ MEASURED WITH VTVM
■ MEASURED FROM 140V LINE
⊘ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, No signal applied.

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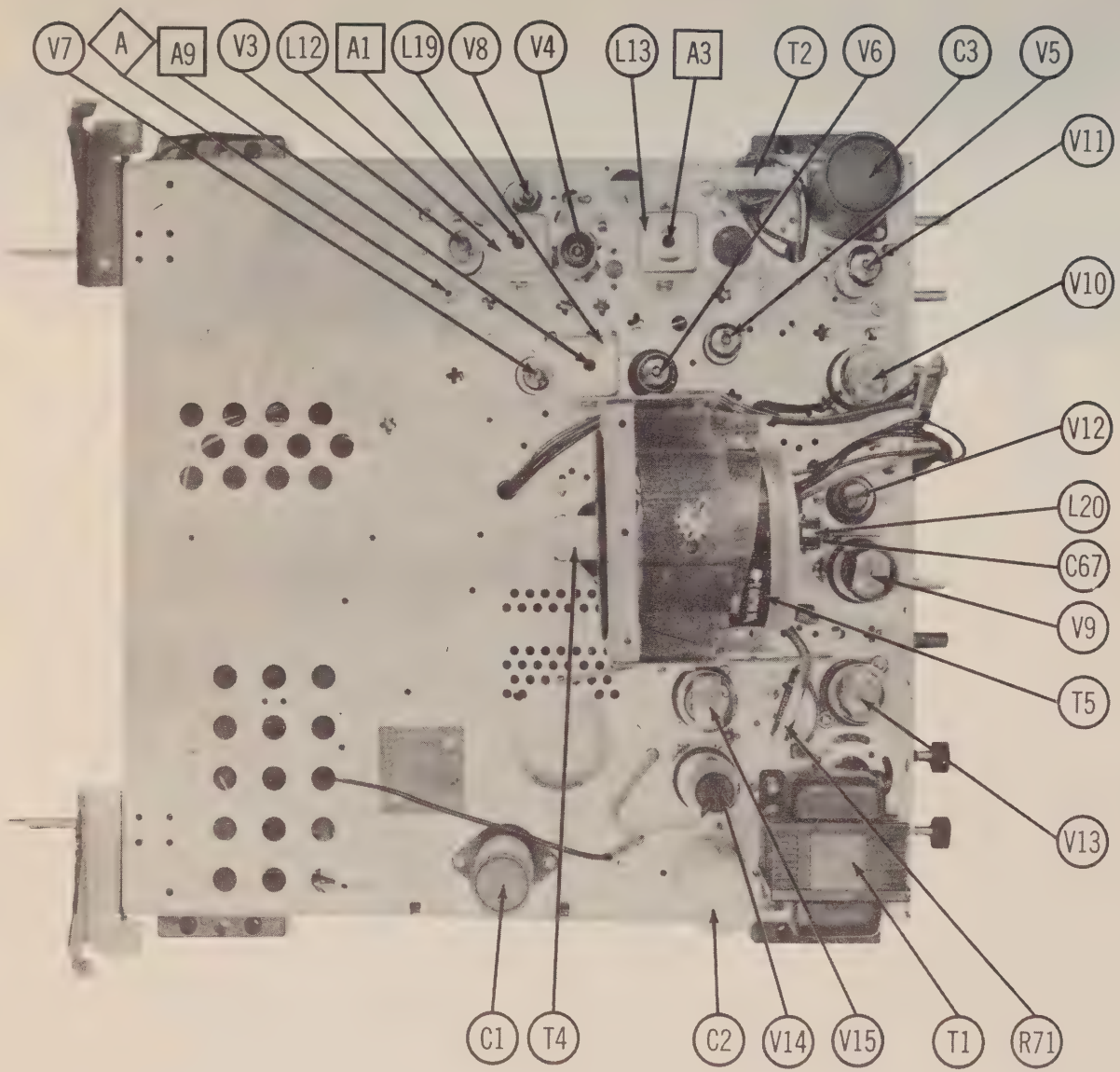

CHASSIS TOP VIEW

MOTOROLA MODELS 17F11, 17K8A, BA, 17K9A, BA,
17K10, M, 17K11A, BA, 17T5A, 17T5C, 17T6BF, F

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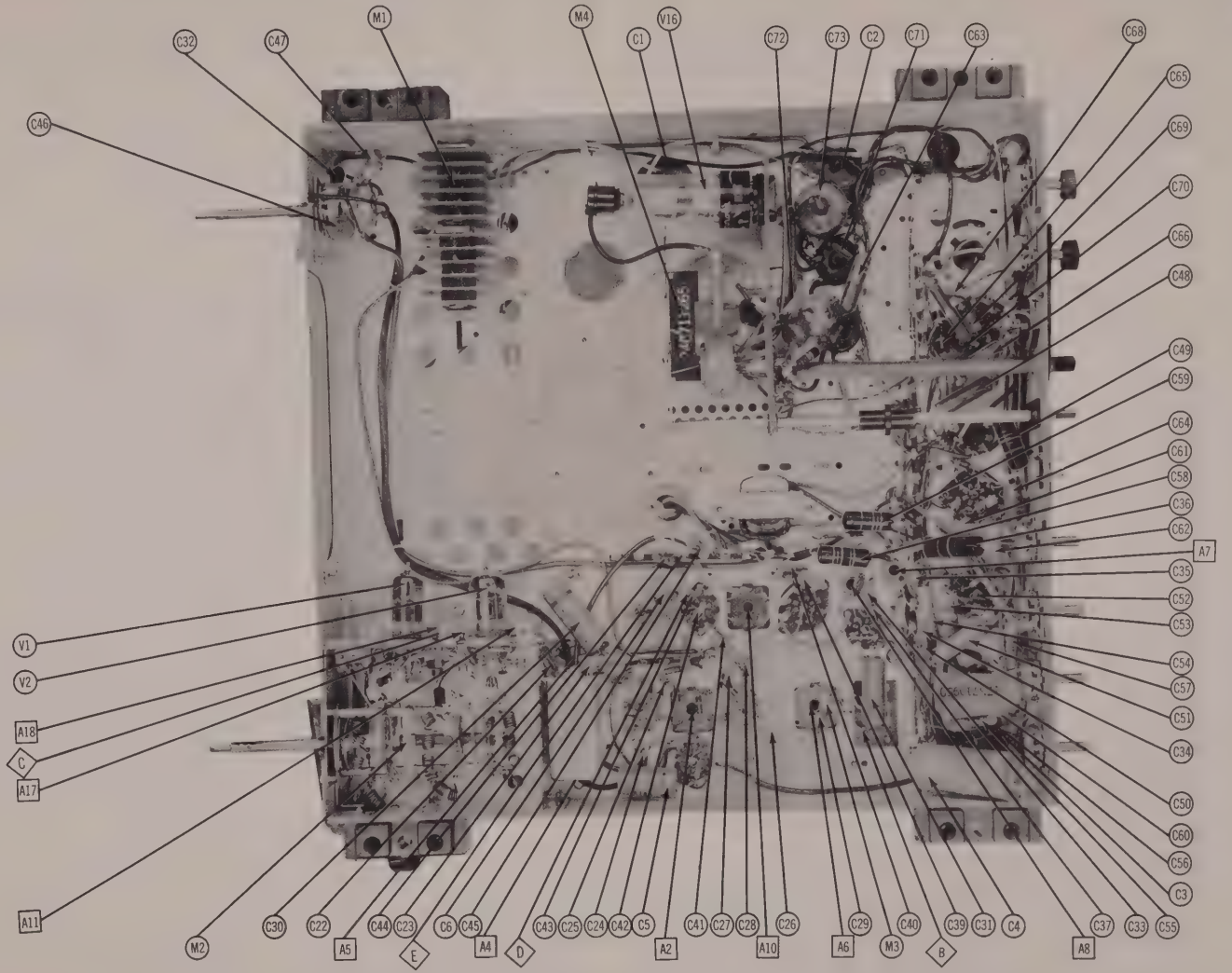
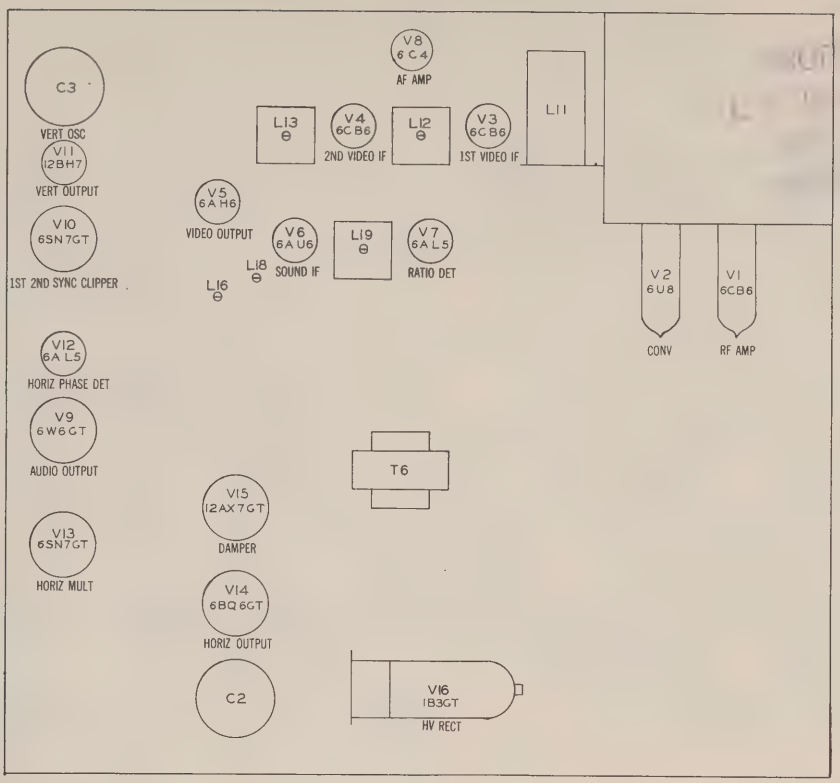
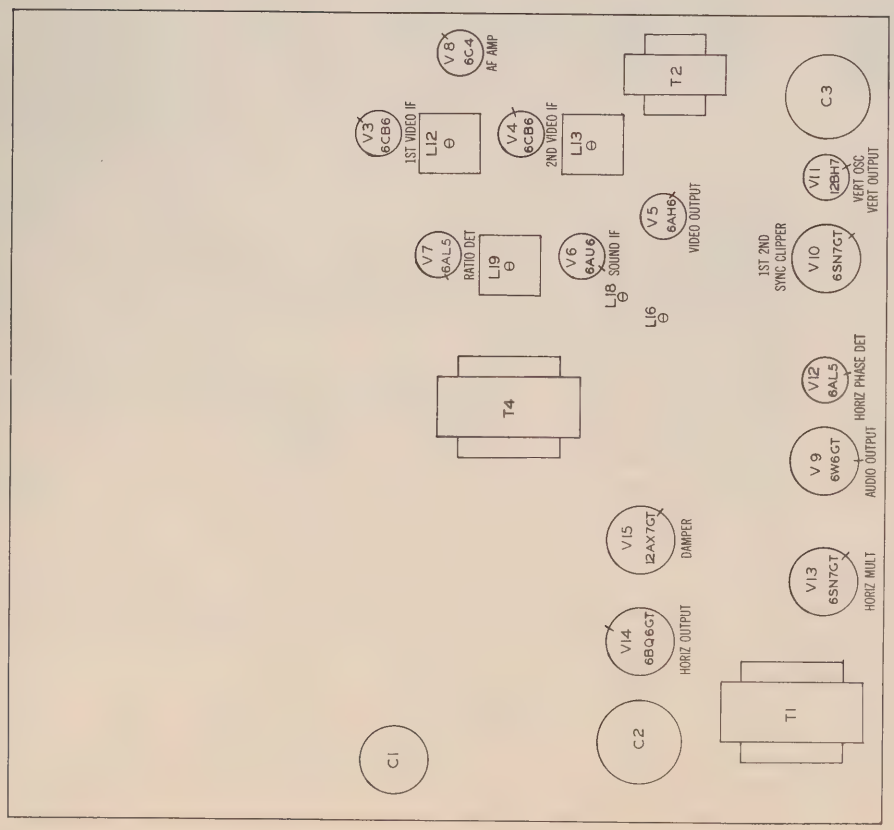


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



BOTTOM VIEW



TOP VIEW

TUBE PLACEMENT CHART

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage shock hazard may be eliminated by removing the horizontal output tube, (V14), from its socket.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded lead of C30, connect the positive lead to chassis.
Disable the local oscillator by connecting a short across the entire oscillator inducatnce, (arm of switch to ungrounded plate of fine tuning cap.
Connect an 820Ω resistor across terminals 1 and 4, (primary), of L13.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF	High side to Point (A). Low side to chassis.	24MC (10MC swp.)	21.9MC 24.75MC	Any	Vert. amp. thru 47KΩ to Point (B). Low side to chassis.	A1, A2	Adjust for response curve similar to Fig. 1 centered at 24.75MC
2.	"	"	"	21.9MC	"	"	A3	Adjust for MINIMUM marker amplitude at the 21.9MC point on response curve.
3.	"	High side to Point (C). Low side to chassis.	"	21.9MC 24.75MC	"	"	A4, A5	Adjust for response curve similar to Fig. 2.
4.	"	"	"	21.9MC 22.9MC 26.4MC	"	"	A6	Adjust for response curve similar to Fig. 3. The markers should be within the limits shown.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	1000MMF	High side to Pin 1, (grid), of 6AH6, (V5). Low side to chassis.	4.5MC (unmod.)	Any	DC probe thru detector (Fig.4), to pin 11 of picture tube. Common to chassis.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	1000MMF	High side to Pin 1, (grid), 6AH6, (V5). Low side to chassis.	4.5MC (450KC swp.)	4.5MC	Any	Vert. amp. to Point (D). Low side to chassis.	A8, A9	Disconnect stabilizor capacitor C6. Adjust for maximum amplitude & symmetry as per Fig. 5.
7.	"	"	"	"	"	Vert. amp. to Point (E). Low side to chassis.	A10	Reconnect capacitor C6. Adjust A10 so 4.5MC occurs at center of crossover lines as per Fig. 6. SLIGHTLY retouch A9 for maximum amplitude & straightness of cross-over lines.

OSCILLATOR ALIGNMENT

Remove the short from across the oscillator coils.
Remove the tuner bottom cover.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC swp.)	197.75MC	10	Vert. amp. to Point (B). Low side to chassis.	A11	Adjust to place sound marker slightly higher in frequency than the 21.9MC trap "notch". This is necessary to compensate for the oscillator frequency change when bottom cover is replaced. See Fig. 7.
9.	"	"	177MC (10MC swp.)	179.75MC	7	"		Check all high band channels to see if the sound marker can be placed as shown in Fig. 7 within 30 deg. rotation of fine tuning control. If more than 30 deg. rotation is required on any channel, expand or compress turns of L9 until that channel meets the 30 deg. requirement. If L9 is changed it may be necessary to repeat steps 8 & 9 several times to arrive at a compromise which gives best results across the high band channels.
			183MC (10MC swp.)	185.75MC	8			
			189MC (10MC swp.)	191.75 MC	9			
			201MC (10MC swp.)	203.75MC	11			
			207MC (10MC swp)	209.75MC	12			
			213MC (10MC swp.)	215.75MC	13			
10	"	"	85MC (10MC Swp)	87.75MC	6	Vert. amp. to Point (B). Low side to chassis.	A12	Expand or compress coil turns to place sound marker slightly above the trap notch
			79MC (10MC swp.)	81.75MC	5		A13	
			69MC (10MC swp.)	71.75MC	4		A14	
			63MC (10MC swp.)	65.75MC	3		A15	
			57MC (10MC swp.)	59.75MC	2		A16	

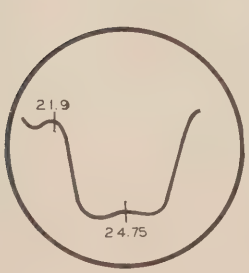


FIG.1

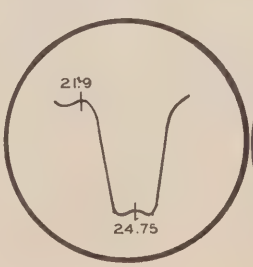


FIG.2

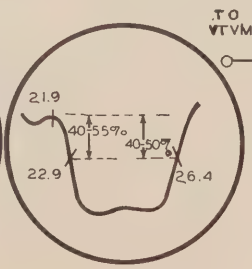


FIG.3

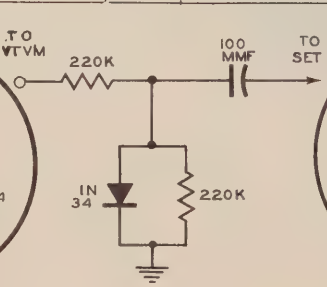


FIG.4

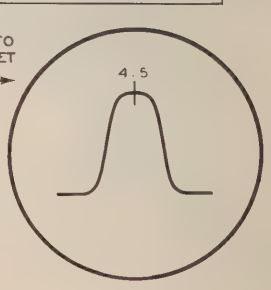


FIG. 5

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

Replace the short across the oscillator coils.
Remove the bias battery and short C30.
Notice that for the low channels the antenna coils are tuned to the video carrier frequency of each channel and the RF coils are tuned to the sound carrier frequency.
Turn A18 so the screw is centered in the coil.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	177MC (10MC swp.)	175.25MC 179.75MC	7	Vert. amp. thru 47KΩ to Point C. Low side to chassis.	A17	Adjust for response curve within the limits of Fig. 8.
12.	"	"	213MC (10MC swp.)	211.25MC 215.75MC	13	"	A18	Adjust for response curve within the limits of Fig. 8. If necessary repeat steps 11 & 12 until both channels fall within the limits shown.
13	"	"	207MC (10MC swp.)	205.25MC 209.75MC	12	"		Check all high band channels for response within the limits of Fig. 8. If necessary retouch A17 & A18 as needed to obtain optimum response across the high band channels. The peak may be sharpened or broadened by altering the high freq. matching bus, (A19)
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
14	"	"	85MC (10MC swp.)	83.25MC 87.75 MC	6	"	A20 A21	Expand or compress coil turns for response curve similar to Fig. 9. Notice that the antenna coils are tuned to the video carrier frequency and the RF coils are tuned to the sound carrier frequency.
			79MC (10MC cwp.)	77.25MC 81.75MC	5		A22 A23	
			69MC (10MC swp.)	67.25MC 71.75MC	4		A24 A25	
			63MC (10MC swp.)	61.25MC 65.75MC	3		A26 A27	
			57MC (10MC swp.)	55.25MC 59.75MC	2		A28 A29	

Remove shorts from Osc. Coils and C30.

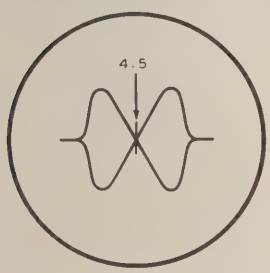


FIG. 6

FIG. 7

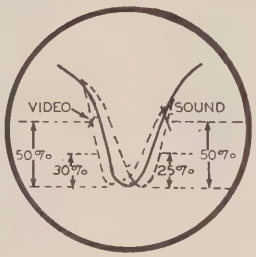


FIG. 8

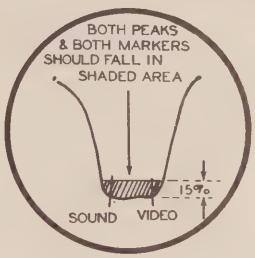


FIG. 9

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set the right hand edge of the pointer even with the left hand edge of the 55 at the low frequency end of the dial scale.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

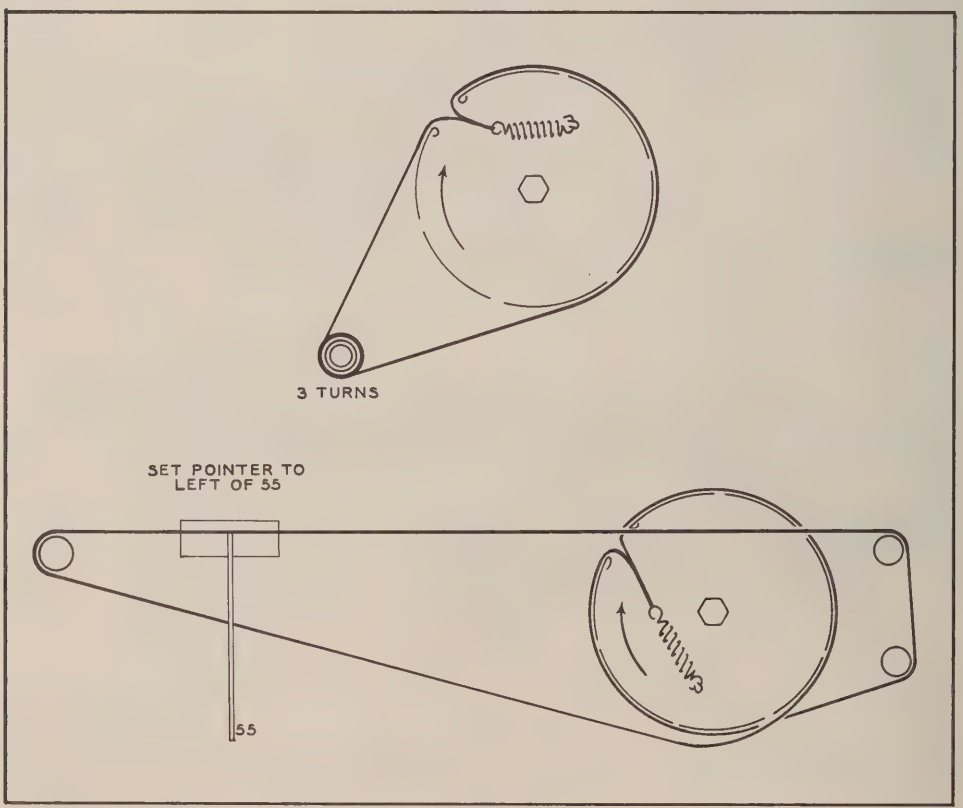
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
15	.1MFD	High side to Pin 7, (grid) of 6BE6, (V19), Low side to chassis.	455KC (400∿ mod.)	AM	Tuning gang fully open.	Across voice coil.	A30, A31, A32 A33	Adjust for maximum output.
16	"	"	1620KC	"	"	"	A34	"
17		Loop	1400KC	"	Tune for max. output	"	A35	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	IF AFTER ALIGNMENT IS COMPLETED, THE SET IS STILL BADLY OFF CALIBRATION PERFORM THE FOLLOWING IN PLACE OF 16 & 17 ABOVE.							
16A		Loop	1620KC	AM	Tuning gang fully open.	Across voice coil	A34	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
17A		Loop	535KC	"	Tuning gang fully closed.	"	A36	Adjust for max. output. Repeat steps 16A & 17A until no further improvement can be made.
18		"	1400KC	"	Tune for max. output.	"	A35	Adjust for maximum output.

RESISTANCE MEASUREMENTS

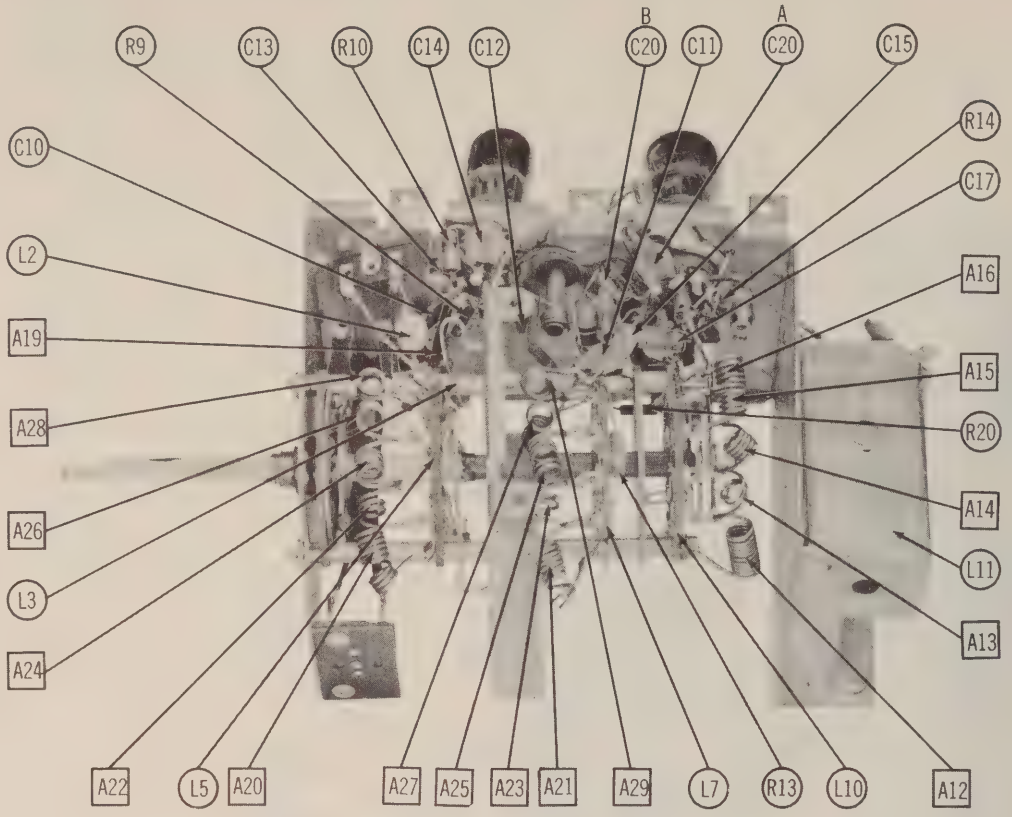
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	2.7Meg	33Ω	.1Ω	0Ω	■220Ω	■3.5KΩ	0Ω		
V 2	6U8	■2.2KΩ	100KΩ	■330KΩ	.1Ω	0Ω	■220Ω	0Ω	0Ω	15KΩ
V 3	6CB6	2.2Meg	47Ω	.1Ω	0Ω	■1KΩ	■1KΩ	0Ω		
V 4	6CB6	.2Ω	82Ω	0Ω	.1Ω	■1KΩ	■1KΩ	0Ω		
V 5	6AH6 –	1Meg	350Ω	.1Ω	0Ω	†4.8KΩ	†33KΩ	350Ω		
V 6	6AU6	1.2Ω	150Ω	0Ω	.1Ω	■2.2KΩ	■2.2KΩ	150Ω		
V 7	6AL5	INF	INF	.1Ω	0Ω	6.8KΩ	0Ω	6.8KΩ		
V 8	6C4	†33KΩ	750KΩ	.1Ω	0Ω	†33KΩ	60KΩ	1.8KΩ		
V 9	6W6GT	INF	■.2Ω	†210Ω	†55Ω	†33KΩ	INF	■0Ω	60KΩ	
V 10	6SN7GT	■2.2Meg	†680KΩ	■0Ω	22KΩ	■10KΩ	2.2KΩ	0Ω	.1Ω	
V 11	12BH7	# 750Ω	#2.5Meg	9KΩ	.1Ω	.1Ω	#2.5Meg	460KΩ	50Ω	0Ω
V 12	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	15KΩ	0Ω	15KΩ		
V 13	6SN7GT	75KΩ	†120KΩ	1.2KΩ	9.4Meg	†7.8KΩ	1.2KΩ	.1Ω	0Ω	
V 14	6BQ6GT	INF	.1Ω	†120KΩ	■0Ω	470KΩ	15KΩ	0Ω	0Ω	Top Cap #45Ω
V 15	12AX7GT	INF	#27Ω	200KΩ	INF	†55Ω	#300KΩ	0Ω	.4Ω	
V 16	1B3GT	PINS 1-8 HAVE INF RESISTANCE								Top Cap #210Ω
V 17	17TP4	.1Ω	1.8KΩ	Pin 10 #17Ω	Pin 11 260KΩ	Pin 12 0Ω	35KΩ			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM OUTPUT OF M1
■ MEASURED FROM 140VDC LINE
MEASURED FROM PIN 3 OF V15

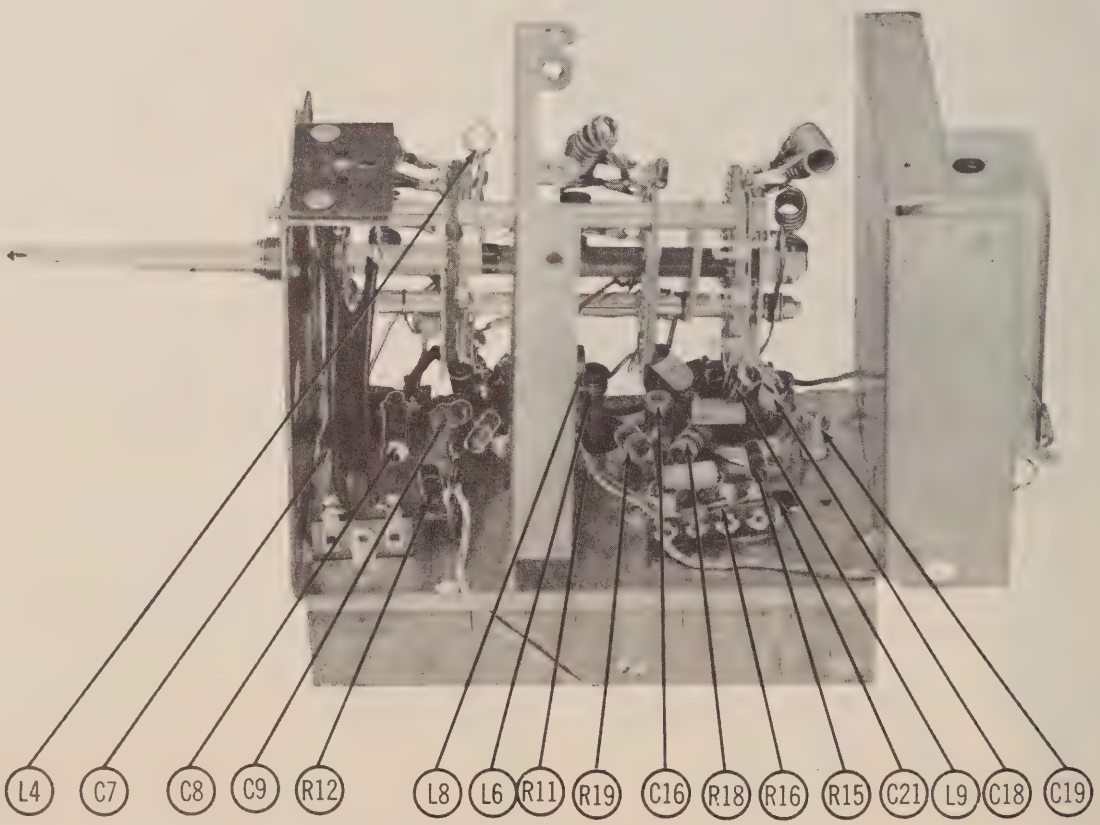
TUNING GANG FULLY CLOSED



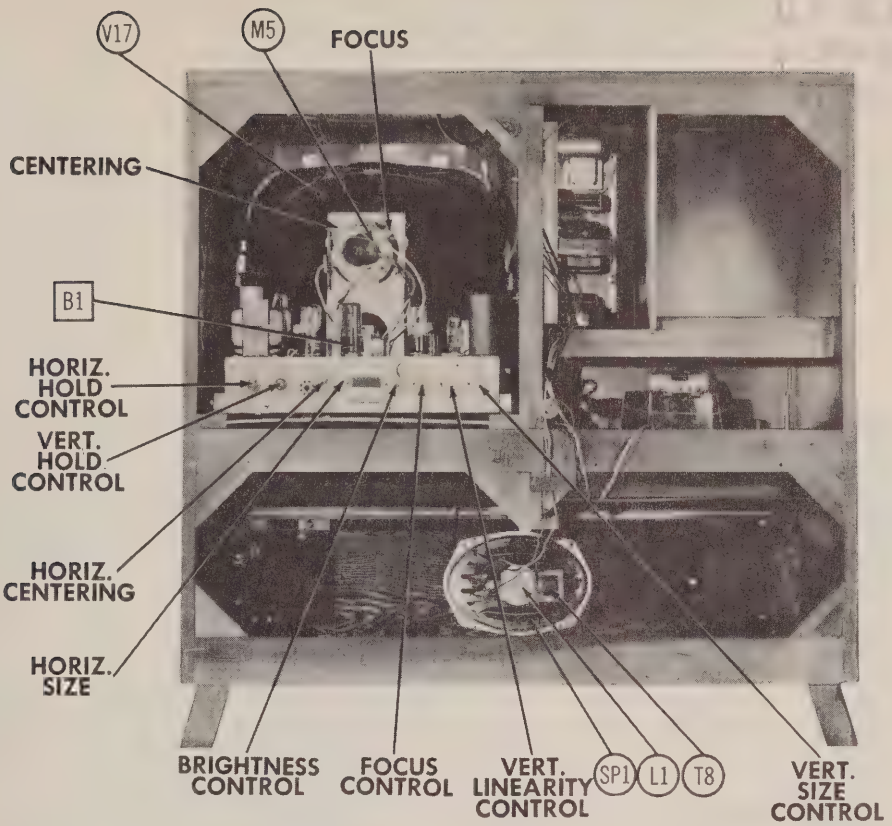
DRIVE CORD STRINGING



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid position of its range.

Adjust the horizontal frequency slug, (B1), to the center of the range over which the picture synchronizes horizontally.

Adjust the width control until the picture is slightly wider than necessary to fill the mask horizontally.

DISASSEMBLY INSTRUCTIONS

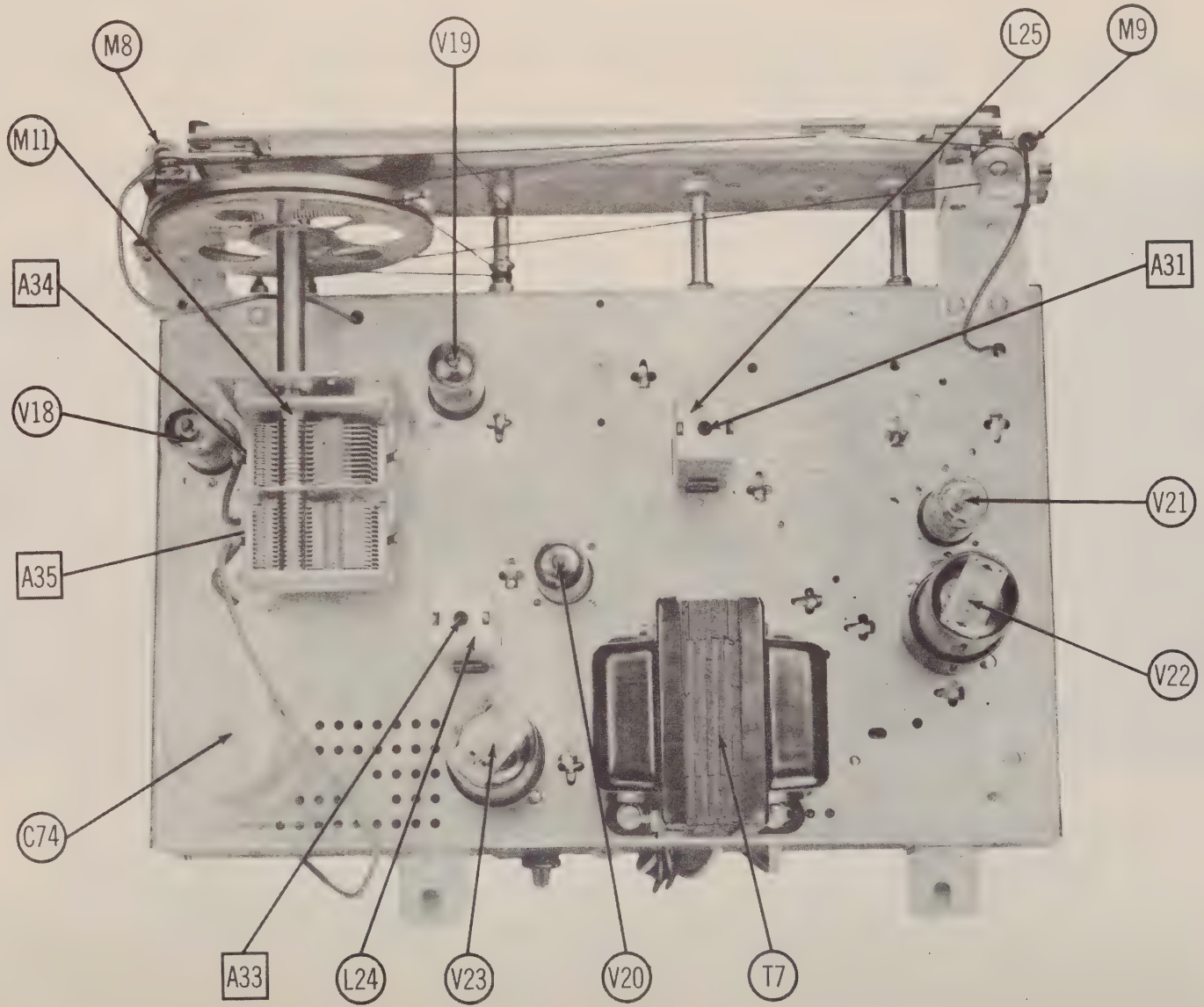
TV

1. Remove 4 push-on control knobs from front panel.
2. Remove 6 wood screws and rear cover.
3. Disconnect built-in antenna.
4. Remove 2 wood screws and remove antenna bracket.
5. Remove speaker plug.
6. Remove 4 chassis bolts. Remove chassis.

Note: For picture tube removal it is necessary to remove chassis as outlined above.

RADIO

1. Remove 4 push-on type control knobs from front panel.
2. Remove 6 wood screws and remove rear cover.
3. Disconnect speaker pin plugs from speaker.
4. Disconnect antenna leads.
5. Disconnect phono plugs from beneath changer.
6. Remove 2 chassis screws. Remove chassis.
7. Remove 4 nuts holding speaker. Remove speaker.



RADIO CHASSIS-TOP VIEW

TV PARTS LIST AND DESCRIPTIONS

PROPERTY OF
L. F. BL
3924 MEADE
DENVER, COLO

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6U8	6U8	9AE	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	Video Output	6AH6	6AH6	7BK	
V6	Sound IF Amp.	6AU6	6AU6	7BK	
V7	Ratio Detector	6AL5	6AL5	6BT	
V8	AF Amplifier	6C4	6C4	6BG	
V9	Audio Output	6W6GT	6W6GT	7AC	
V10	1st & 2nd Sync. Clippers	6SN7GT	6SN7GT	8BD	
V11	Vert. Oscillator Vert. Output	12BH7	12BH7	9A	
V12	Horiz. Phase Det.	6AL5	6AL5	6BT	
V13	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V14	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V15	Damper	12AX4GT	12AX4GT	4CG	
V16	HV Rectifier	1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V17A	17TP4	17TP4		12C	
B	17HP4	17HP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	140	150	23B484097	E3A120		UPE15015		TVL-1428	Voltage Doubler
C2A	100	300	23B702451	E4D491				TVL-4561	● Filter
B	200	150							▲ Decoupling
C	10	300							■ Video Amp. Screen ¶
D	30	150							Vert. Output Cathode
C3A	200	150	23B710941	E4B257		UPE101015		TVL-1431	● Filter
B	5	150				BR415		TVA-1402	▲ Horiz. MV Decoupling
C4	20	450	23K710667	PRS450/20		BR2045A		TVA-1709	Vert. Output Decoupling
C5	10	50	23A90205	PRS50/10		BR105		TVA-1304	AF Amp. Cathode
C6	10	50	23A90205	PRS50/10		BR105		TVA-1304	Stabilizing Cap.
C7	220		21K77375	SI220	D6-221		GP2K-221	5GA-T22	RF Coupling
C8	220		21K77375	SI220	D6-221		GP2K-221	5GA-T22	RF Coupling
C9	220		21K400941	SI220	D6-221		GP2K-221	5GA-T22	RF Coupling
C10	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	AGC Filter
C11	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	RF Amp. Plate Dec.
C12	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	RF Amp. Screen Bypass
C13	22		21R400942	SI22	D6-220		GP1K-220	5GA-Q22	RF Amp. Cathode
C14	1000		21R400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	RF Amp. Fil. Bypass
C15	12		21K114073				N330K-120		RF Coupling
C16	.5-3		1X710954		829-3				Variable Trimmer
C17	1		21K114071						Osc. Coupling
C18	18		21K711246						Osc. Grid Cap.
C19	.5-3		1X710954		829-3				Variable Trimmer
C20A	800			BPD-2X001	DD-2-102	TM5DD1	801-001	5HK-2D1	Conv. Fil. Bypass †
B	800								Mixer Screen Bypass †
C21	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	RF Bypass
C22	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Mixer Plate Dec.
C23	1500		21A701029	BPD-0015	DD-152	TM5D15	801-0015	5HK-D15	AGC Filter
C24	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	1st Video IF Dec.
C25	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	RF Bypass
C26	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	2nd Video IF Dec.
C27	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	2nd Video IF Cathode
C28	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	2nd Video IF Fil.
C29	4		21K28951				NP0K-040		Video Det. Filter
C30	.25	200	8R9810	P488-25		PJ2P25		2TM-P25	AGC Filter
C31	.1	100	8R9814	P288-1	DF-104	PJ2P1		2TM-P1	Video Coupling
C32	150		29R691948				N150-333-151		Video Output Cathode
C33	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Video Output Screen
C34	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	RF Bypass
C35	30		21K470329				N150K-300		Fixed Trimmer
C36	.1	400	8R490236	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C37	2.2		21A478274		TCZ-2.2		NP0K-2R2		Sound IF Coupling
C38	68		21R400928				N470L-680		Fixed Trimmer
C39	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Sound IF Decoupling
C40	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Sound IF Cathode
C41	1000		21K400936	BPD-001	DD-102	TM5D1	801-001	5HK-D1	Ratio Det. Fil.
C42	1000		21K780599	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	Diode Load Cap.
C43	470		21K400947	SI470	D6-471		GP2K-471	5GA-T47	RF Bypass
C44	1000		21K780599	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	De-emphasis
C45	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Audio Coupling
C46	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Volume Cont. Isolation
C47	.003	200	8R9820	P688-003	D6-302		GP2-333-302	6TM-D3	Tone Comp. ‡
C48	.01	400	8R9858	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Output Grid
C49	.022	600	8R490255	P688-022	DF-203	PTE6S22		6TM-S22	Audio Output Plate †
C50	100		21B77286	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Sync. Coupling
C51	.005	600	8R9869	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Sync. Coupling
C52	20		21R400942	SI20N750	TCN-20		N750K-200		Sync. Clipper Grid
C53	.05	600	8R490232	P688-05	DF-503	PTE6S5		6TM-S5	Sync. Coupling
C54	.005	600	8R490222	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Vert. Sync. Coupling
C55	.005	600	8R490222	P688-005		PTE6D5		6TM-D5	Vert. Integrator Net.
C56	.01	400	8R490226	P488-01		PTE4S1		4TM-S1	Vert. Integrator Net.
C57	.005	600	8R9869	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Fixed Trimmer
C58	.047	400	8R490232	P488-047		PTE4S47		4TM-S47	Vert. Discharge
C59	.047	400	8R490232	P488-047		PTE4S47		4TM-S47	Integrator Net.
C60	5000		21A470789	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Vert. Output Cathode
C61	.001	600	8R9866	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Sync. Coupling
C62	.001	600	8R9866	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Sync. Coupling

TV PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C63	.001	1000	8R9877	P1088 001		PTE18D1			MB-D1 Horiz. Feedback
C64	.01	400	8R490226	P488 01	D6-103	PTE45I	GP2-333-103	6TM-S1	Voltage Divider
C65	.0033	400	8R490220	P686-0033	D6-332	PTE6D33	GP2-333-332	6TM-D3	Horiz. AFC Coupling
C66	.01	400	8R9858	P488 01	D6-103	PTE45I	GP2 333-103	4TM-S1	Horiz. AFC Filter
C67	.0047	60C	8R9869	P688 0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Fixed Trimmer
C68	220		2UK77375	SU220	D6-221		GP2K-221	5GA-Y22	Horiz. MV Plate
C69	390	500	[illegible]	1469-0004		5RST4		MS-34	Horiz. MV Feedback
C70	680	500	2UK2741	1479-0007		2RST4		MS-37	Horiz. Discharge
C71	5000		21A410789	BPD-005	DD-502	TMSD5	811-005	5HK-D5	Horiz. Sweep Coupling
C72	180	3000	21K701873						Damper Plate
C73	500	20000	21A790833	HV20C	TV3-502	MM-C20T5			HV Filter

3 This item is a single unit in early Models and is 5MFD (Part No. 33A711003)
† Some Models use dual disc (2X1000MMF) in this application (Part No. 21K400937)
‡ Not used in early Models

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2500Ω		18K702864	Concentrikit B17-111X *			Contrast Control - Tapped @ 500Ω - Panel
B	1Meg			B13-137X *			Volume Control-Tapped @ 300KΩ - Rear
C	Shaft End		Not Req.	B1B7-4			Attach per instructions in Concentrikit
D	Switch		Not Req.	76-1			Attach per instructions in Concentrikit
R2A	100KΩ		18A702468	QU-128		AG-49-S	Horiz. Hold Control - See Note 1
B	Shaft		Not Req.	Not Req.		RS-2	Attach to R2A per instructions
R3A	850KΩ		18K711278	QU-137		AG-61-S	Vert. Hold Control - See Note 2
B	Shaft		Not Req.	Not Req.		RS-2	Attach to R3A per instructions
R4A	5Meg		18A702441			AG-85-Z	Brightness Control - See Note 3
B	Shaft		Not Req.			RS-2	Attach to R4A per instructions
R5A	1Meg		18A811225	QU-197	AG-61-S	AN-89	Focus Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	750Ω		18A702475		AG-8-S		Vert. Linearity Control
B	Shaft		Not Req.		RS-2		Attach to R6A per instructions
R7A	5Meg		18A702443	QU-141	AG-85-S		Vert. Size Control - See Note 4
B	Shaft		Not Req.	SQ	RS-2		Attach to R7A per instructions
R8	50Ω	1	1K711613				Horiz. Centering Control - Wire Wound

* Additional Parts to be used with "Concentrikit".
Note 1. Connect a 39KΩ Resistor between the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 2. Connect a 330KΩ Resistor between the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 3. Connect a 100KΩ Resistor between the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down)
Note 4. Connect a 1Meg Resistor between the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down)

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R9	22KΩ		6R6397		RF Amp. Grid
R10	33Ω		6R2036		RF Amp. Cathode
R11	3300Ω 20%		6R6036	BTA-3300	RF Amp. Screen
R12	470KΩ 20%		6R6032	BTS-470K	AGC Network
R13	22KΩ 20%		6R6397		RF Coil Shunt
R14	15KΩ 20%		6R2119	BTS-15K	Osc. Grid
R15	1000Ω 20%		6R6301	BTS-1000	Osc. Plate
R16	1000Ω 20%		6R6301	BTS-1000	Osc. Plate Decoupling
R17	220Ω 20%		6R3933	BTS-220	Decoupling
R18	47000Ω 20%		6R6039	BTS-4700	Mixer Grid
R19	100KΩ 20%		6R6075		Mixer Grid
R20	330KΩ 20%		6R6014	BTS-330K	Mixer Screen
R21	1000Ω 20%		6R6301	BTS-1000	AGC Network
R22	6800Ω		6R6428	BTS-6800	1st Video IF Coil Shunt
R23	47Ω 20%		6R2108		1st Video IF Amp. Cathode
R24	1000Ω 20%		6R6301	BTS-1000	1st Video IF Amp. Decoupling
R25	8200Ω		6R2094		2nd Video IF Coil Shunt
R26	82Ω		6R2035	BTS-82	2nd Video IF Amp. Cathode
R27	1000Ω 20%		6R6301	BTS-1000	2nd Video IF Amp. Decoupling
R28	5600Ω		6R6117	BTS-5600	Video Det. Load
R29	2.2Meg 20%		6R3927	BTS-2.2Meg	AGC Network
R30	1Meg		6R6045	BTS-1Meg	Video Output Grid
R31	33KΩ 20%	1	6R401012	BTA-33K	Video Output Screen
R32	4700Ω	2	6R5871	BTB-4700	Video Output Plate
R33	1000 20%		6R6018	BTS-100	Video Output Plate
R34	10KΩ 20%		6R6054	BTS-10K	Isolation - See note 1.
R35	150Ω		6R3992	BTS-150	Sound IF Amp. Cathode
R36	2200Ω 20%		6R6089	BTS-2200	Sound IF Amp. Decoupling
R37	120Ω		6R5551	BTS-120	Balancing
R38	33KΩ 20%		6R6012	BTS-33K	De-emphasis
R39	6800Ω		6R6428	BTS-6800	Ratio Det. Diode Load
R40	6800Ω		6R6428	BTS-6800	Ratio Det. Diode Load
R41	68KΩ 20%		6R6001	BTS-68K	Tone Compensation
R42	1800Ω		6R2089	BTS-1800	AF Amp. Cathode
R43	33KΩ		6R6410	BTS-33K	AF Amp. Plate
R44	470KΩ 20%		6R6032	BTS-470K	Isolation - See note 1.
R45	470KΩ 20%		6R6032	BTS-470K	Isolation
R46	2.2Meg 20%		6R3927	BTS-2.2Meg	1st Sync. Clipper Grid
R47	680KΩ		6R6475	[illegible]	1st Sync. Clipper Plate
R48	22KΩ		6R6028	BTS-22K	2nd Sync. Clipper Grid
R49	2200Ω		6R6290	BTS-2200	2nd Sync. Clipper Cathode
R50	6800Ω		6R6428	BTS-6800	2nd Sync. Clipper Plate
R51	3900Ω		6R5659	BTS-3900	2nd Sync. Clipper Plate
R52	560KΩ		6R5697	[illegible]	Voltage Divider
R53	22KΩ		6R6028	BTS-22K	Integrator Network
R54	10KΩ 20%		6R6054	BTS-10K	Integrator Network
R55	33000Ω		6R5581	BTS-3300	Vert. Peaking
R56	1800Ω		6R2089	BTS-1800	Vert. Blanking
R57	8700Ω	3	17K710950		Vert. Output Cathode - Wire Wound
R58	100KΩ 20%		6R6031	BTS-100K	Horiz. Phase Det. Diode Load
R59	100KΩ 20%		6R6031	BTS-100K	Horiz. Phase Det. Diode Load

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
R60	4.7Meg 20%		6R2122	BTS-4.7Meg	Horiz. Phase Det. Diode Load
R61	4.7Meg 2.5%		6R2122	BTS-4.7Meg	Horiz. AFC Filter
R62	15KΩ 5%		6R2119	BTS-15K 5%	Feedback Network
R63	150KΩ		6R410053	BTA-150K	Feedback Network
R64	150KΩ		6R410053	BTA-150K	Feedback Network
R65	5600Ω		6R6117	BTS-5600	Horiz. MV Plate
R66	120KΩ		6R5631	BTB-120K	Horiz. MV Plate
R67	1200Ω		[illegible]	BTS-1200	Horiz. MV Cathode
R68	4700Ω		6R6089	BTS-4700	Horiz. Peaking
R69	470KΩ		6R6032	BTS-470K	Horiz. Output Grid
R70	2200Ω		[illegible]	BTS-2200	Decoupling
R71	7.5Ω	5	17A791166		Surge Limiter - Wire Wound
R72	120Ω		6R5551	BTS-120	Damping

Note 1. Not used in model #17T5A

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	6.3VAC @ 6A Tapped 6.3VAC @ 6.5A & 6.6VAC @ .6A	@ 1.2A		25B711921			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	53Ω	225Ω	25K702429				Vert. Oscillator Trans.
T3	185Ω Tapped @ 18Ω	21Ω SEC. 2 0Ω	25K711265				Horiz. Output Trans.
T4	730Ω Tapped @ 31Ω		25B702445				Vert. Output Trans.
T5A	31Ω		24C703260				Hor. Deflection Coils
B	3.5Ω		24C702655 ① 24K702857 ② 24K703262 ③ 24C702958 ④				Vert. Deflection Coils

① Alternate Transformer
④ Alternate Deflection Yoke

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T6	2.2KΩ	3.6Ω	210Ω	4Ω	25B710925	A-3823	A-2928	RO-2	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1A	P.M.	3.8Ω	50K711250 ① 50C701431 ③ ④ 50K711261 ② ⑤	ST-810 Mod. P65-V	65A2	① Used in model 17F11 ② Alternate 8"X9" P.M. speaker ③ Used in models 17T5C, 17T8F, 17T6BF, 17T5A
	CONE DIA.	V. C. DIA.	50C489002 ⑤			④ Alternate 6" Electro-Dynamic speaker
SP1B	8"X9"	3/4"	50C701431 ③ ⑥ 50C711081 ⑤ ⑥ 50K703084 ⑦ 50K703336 ⑦ ⑤			⑤ Used in models 17K8A, 17K8BA, 17K9A, 17K9BA, 17K10, 17K10M, 17K11A, 17K11BA ⑥ Alternate 8" Electro-Dynamic speaker

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 m^1	REPLACEMENT DATA MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.175ADC	55Ω	1 Henry	25B710075	C-2327	C-2994	R-7200	Used in Model 17P11 Only

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MOTOROLA PART No.	MERIT PART No.	IRC PART No.	NOTES
L2	Ant. Matching coil	0Ω		24A790033			
L3	Ant. Coils	0Ω		24K703079			Low Band
L4	Ant. Coils	0Ω		24K703078			High Band
L5	Ant. Coils	0Ω		24K703003			Low Band
L6	RF Coil	0Ω		24C703076			Channel 13
L7	RF Coils	0Ω		24K703002			Low Band
L8	RF Choke	3Ω		24K702577			3.3 Microhenries
L9	Osc. Coil	0Ω		24K703077			Channel 13
L10	Osc. Coils	0Ω		24C703001			Low Band
L11	1st. Video IF	.2Ω	.1Ω	24D702983			
L12	2nd. Video IF	.2Ω	.1Ω	24D702982			
L13	3rd. Video IF	.4Ω	.4Ω	24B711412			Includes Resistor, Cap., RF Choke & Crystal Det.
L14	RF Choke	2.8Ω		24B711413			
L15	Peaking Coil	16.5Ω		24K711876			Wound on 6.8KΩ Resistor

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MOTOROLA PART No.	MERIT PART No.	IRC PART No.	NOTES
L16	4.5MC Trap	2.3Ω		1X792736			
L17	Peaking Coil	9Ω		24B711875			
L18	Sound IF	1.1Ω		1X790341			
L19	Ratio Det.	2.8Ω	.2Ω	24B702543			Tap at .3Ω
L20	Horiz. Osc.	45Ω		24K701556			
L21	Horiz. Lin.	12.5Ω		24A710751			Wound on .15MF Capacitor

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA MOTOROLA PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	NOTES
M1	.175ADC	48B700555 or 48B703089				

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	RF Tuner	1X703205	Complete with tubes
M3A	Crystal	48C711052	(1N60)Part of L13
B	Crystal	48K711077	Alternate Part of L13
M4A	Centering Magnet	48A711242	
B	Centering Magnet	48A711264	Alternate
C	Centering Magnet	48A711241	Alternate
D	Centering Magnet	2A470649	Alternate
M5A	Ion Trap	24K711843	
B	Ion Trap	24K711842	Alternate
C	Ion Trap	24K711841	Alternate
	Knob	36K700890	Contrast
	Knob	36K700691	Fine Tuning, Off/On Volume } Model 17F11
	Knob	36C700889	Channel Selector
	Knob	38A485457	Vert & Horiz. Hold on rear
	Knob	38K700887	Contrast
	Knob	36C700888	Fine Tuning - Off/On Volume } Models 17K8A, 17K9A
	Knob	36C700886	Channel Selector 17K9BA, 17T5C, 17T5A
	Knob	36A485457	Vert. & Horiz. Hold } 17T8F, 17T6BF
	Knob	38K700734	Contrast
	Knob	36C700732	Fine Tuning, Off/On Volume } Model 17K10, 17K10M
	Knob	36C700733	Channel Selector 17K11A, 17K11BA
	Knob	36A485457	Vert. & Horiz. Hold

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V18	RF Amplifier	[illegible]	6BA6	7BK	
V19	Converter	[illegible]	6BE6	7CK	
V20	IF Amplifier	[illegible]	6BA6	7BK	
V21	Det.-AVC-AF Amp	6AV6	6AV6	7BT	
V22	Audio Output	6K6GT	6K6GT	7S	
V23	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C74A	40	300	23B690975	AFB4-53		UPT44425-C4		TVL-4739	a Filter
B	40	250							e Filter
C	40	250							i Filter
D	40	25							Audio Output Cathode
C75	100		21B77286	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	RF Coupling
C76	100		[illegible]	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	RF Coupling
C77	.05	400	8R9868	P488-05	DF-503	PTE45I		4TM-S5	AVC Filter
C78	47		21K77373	SR5Q5	DD-470	SR5Q5	GP1K-470	5GA-Q47	Osc. Grid Cap.
C79	10000		21K482726	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Osc. Anode Bypass
C80	10000		21K482726	BPD-01	DD-103	TM5S1	821-01	5HK-S1	Conv. Plate Dec.
C81	10000		21K482726	BPD-01	DD-103	TM5S1	821-01	5HK-S1	IF Amp. Plate Dec.
C82	.01	400	[illegible]	P488-01	D6-103	PTE45I	GP2-333-103	4TM-S1	Audio Coupling
C83	.005	800	8R9813	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C84	100		[illegible]	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	AF Amp. Plate Bypass
C85	.005	600	[illegible]	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C86	.005	600	8R9813	P688-005	D6-502	[illegible]	GP2-333-502	6TM-D5	Tone Comp.
C87	.01	400	8R9869	P488-01	D6-103	PTE45I	GP2-333-103	4TM-S1	Audio Coupling
C88	.002	600	8R9847	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Audio Output Plate
C89	.047	400	8R490232	4892GXY		PJ485		6TM-S47	Line Filter

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R73A	2Meg		18A800974	Q13-139X	AT-115	ANT-8U	Volume Control - Tapped @ 600KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SWA	K-155	Attach to R1A per instructions
R74A	1Meg		[illegible]	Q14-137		AN-88	Tone Control
B	Shaft		Not Req.	Not Req		AK-4	Attach to R2A per instructions

RADIO PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R75	1Meg	½	6R6004		RF Amp. Grid
R76	68Ω	½	6R2039		RF Amp. Cathode
R77	4700Ω	½	6R6080	BTS-4700	RF Amp. Plate
R78	33KΩ	½	6R6012	BTS-33K	Mixer Grid
R79	47KΩ	½	6R6056	BTS-47K	Osc. Grid
R80	2200Ω	½	6R6290	BTS-2200	Converter Decoupling
R81	15KΩ	2	6R5732	BTB-15K	Screen Dropping
R82	270Ω	½	6R6432	BTS-270	IF Amp. Cathode
R83	2200Ω	½	6R6290	BTS-2200	IF Amp. Plate Decoupling
R84	47KΩ	½	6R6056	BTS-47K	Diode Filter
R85	2.2Meg	½	6R3927	BTS-2.2Meg	AVC Network
R86	470KΩ	½	6R6032	BTS-470K	Diode Load
R87	10Meg	½	6R2109	BTS-10Meg	AF Amp. Grid
R88	68KΩ	½	6R6074	BTS-68K	Tone Compensation
R89	220KΩ	½	6R6015	BTS-220K	AF Amp. Plate
R90	470Ω	1	6R5593	BTA-470	Output Cathode
R91	470KΩ	½	6R6032	BTS-470K	Output Grid
R92	1000Ω	2	6R3922	BTB-1000	Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T7	117VAC @ .5A	500VCT .060ADC	5VAC @ 2A	6.3VAC @ 2.1A	25B600684	PC8403 ①		PV-60 ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T8	8KΩ	3.6Ω	680Ω	.4Ω	25B600969	A-2313 ②	A-3020	RO-13 ②	② Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L22	Loop Ant.	2.8Ω		24C690896		
L23	Osc. Coil	.2Ω	6.5Ω	24K691878		
L24	Input IF	16.5Ω	16.5Ω	24B485553		
L25	Output IF	17.5Ω	17Ω	24B485555		

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA							REMARKS
	MOTOROLA PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M6	59K691907	AC-AG-J	A-AG	W26B	A66U	33	0-2 or S-2	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

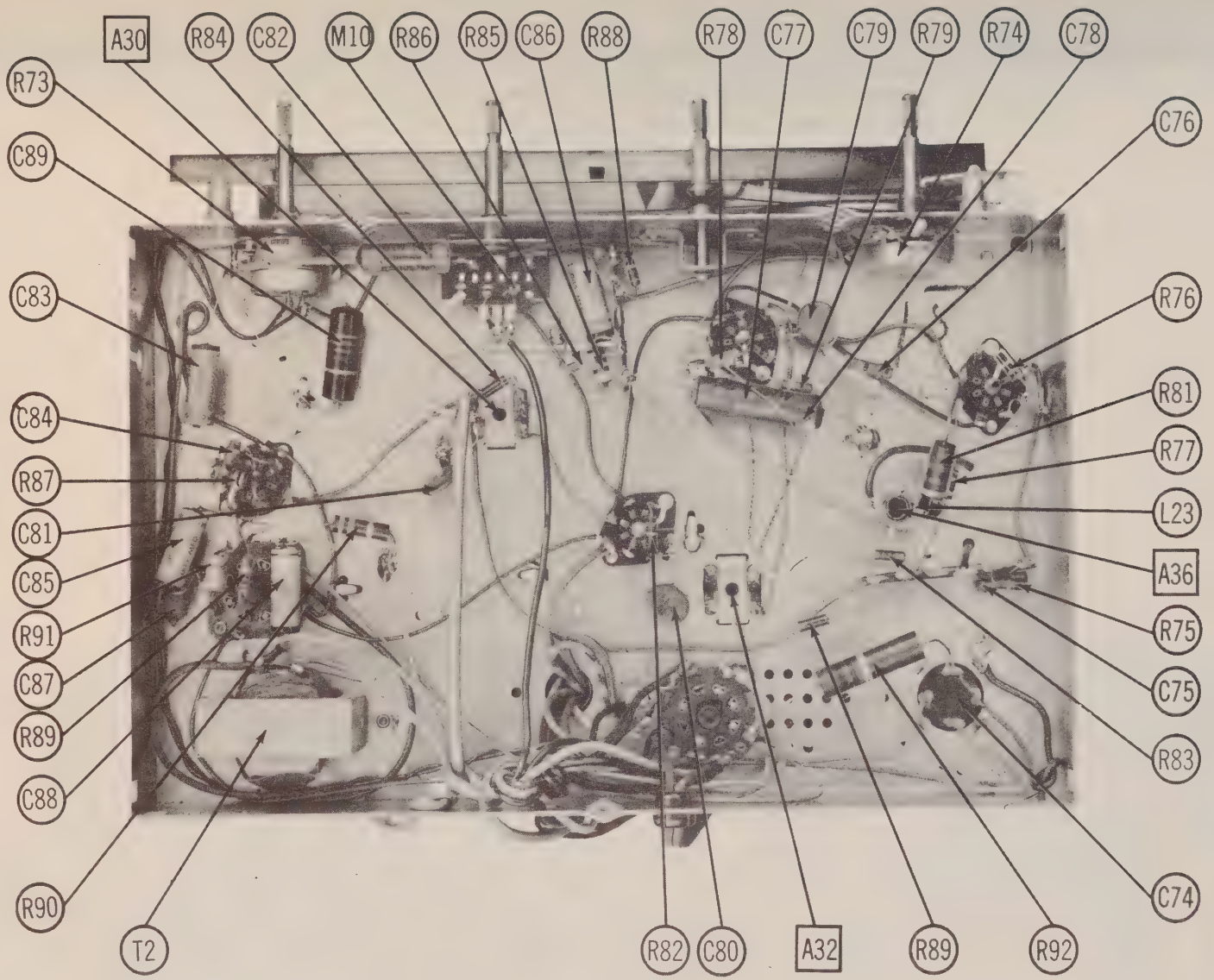
ITEM No.	REPLACEMENT DATA			REMARKS
	MOTOROLA PART No.	WALCO PART No.	JENSEN PART No.	
M7	59K691909	W-20AGA or W-21AGS	E-962 or E-902	

DIAL LIGHTS

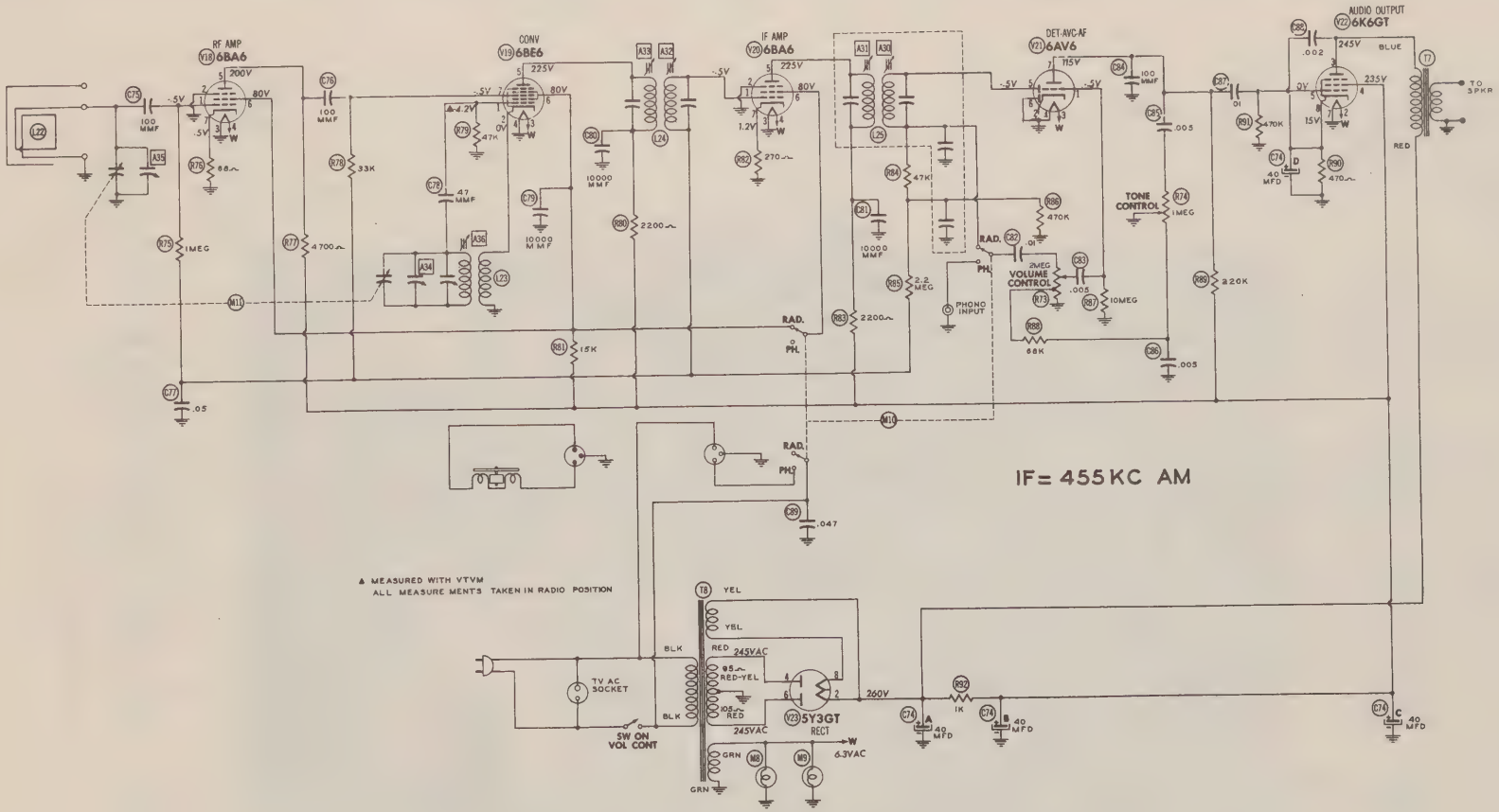
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MOTOROLA PART No.		
M8	Bayonet	6-8	.25	Blue	65X10867		Type No. #44
M9	Bayonet	6-8	.25	Blue	65X10867		Type No. #44

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M10	Switch	40B601065	Radio - Phono
M11	Tuning Cap	19B691877	(15- 447MMF - 32-184MMF)
	Knobs	36C701150	Off/On Volume, Radio, Phono, Tuning, Tone.



RADIO CHASSIS - BOTTOM VIEW



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 18	6BA6	3.6Meg	0Ω	0Ω	.1Ω	†5.7KΩ	†16KΩ	68Ω	
V 19	6BE6	47KΩ	.4Ω	.1Ω	0Ω	†3.2KΩ	†16KΩ	2.7Meg	
V 20	6BA6	2.6Meg	0Ω	0Ω	.1Ω	†3.2KΩ	†16KΩ	270Ω	
V 21	6AV6	10Meg	0Ω	.1Ω	0Ω	515KΩ	0Ω	†220KΩ	
V 22	6K6GT	†0Ω	.1Ω	†680Ω	†1KΩ	470KΩ	300Ω	0Ω	470Ω
V 23	5Y3GT	INF	130KΩ	INF	95Ω	INF	105Ω	INF	130KΩ

ALL MEASUREMENTS TAKEN IN RADIO POSITION
† MEASURED FROM PIN 2 OF V23

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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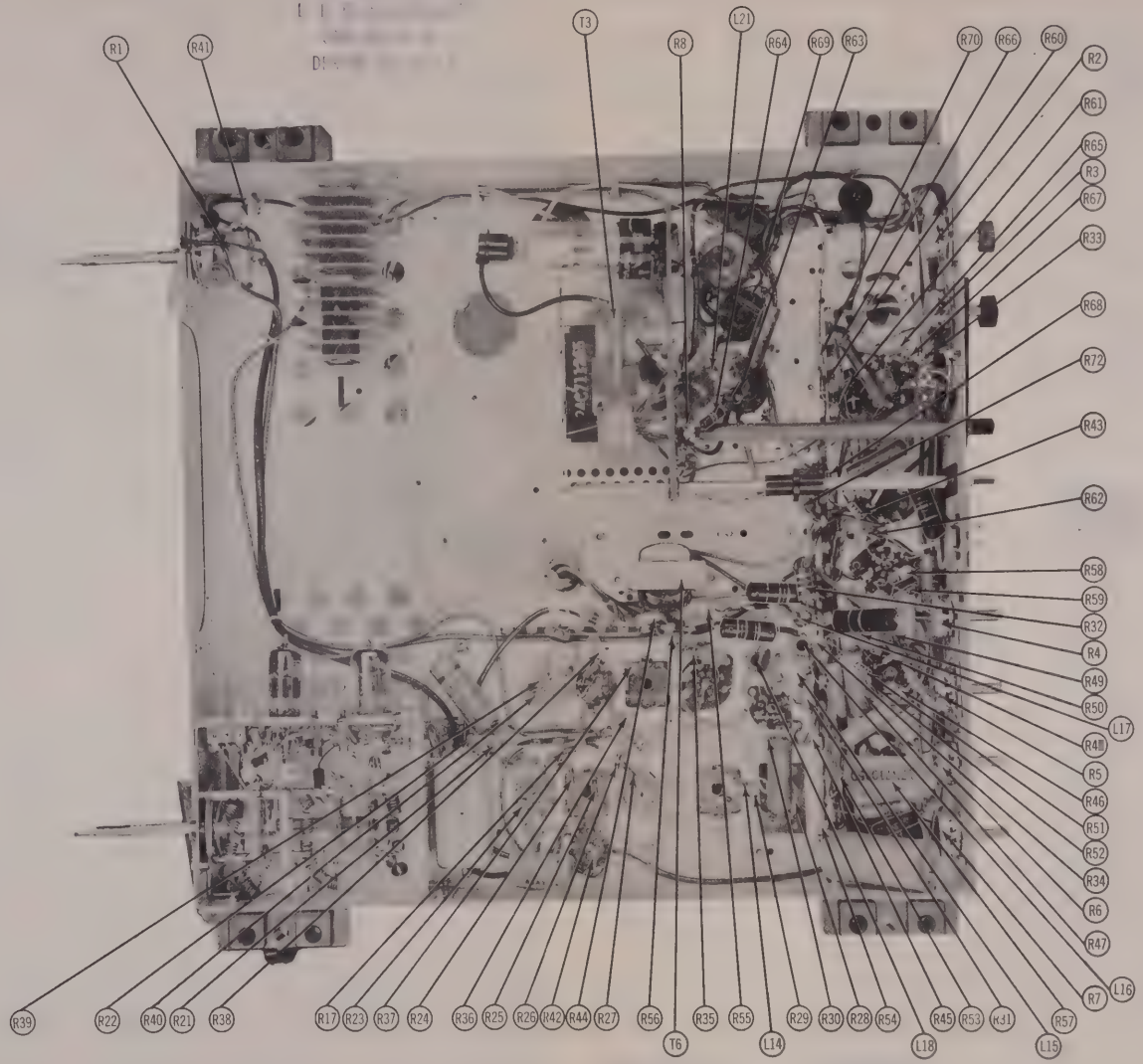
MOTOROLA MODELS 17F11, 17K8A, BA, 17K9A, BA, 17K10, M, 17K11A, BA, 17T5A, 17T5C, 17T6BF, F

RADIO SCHEMATIC

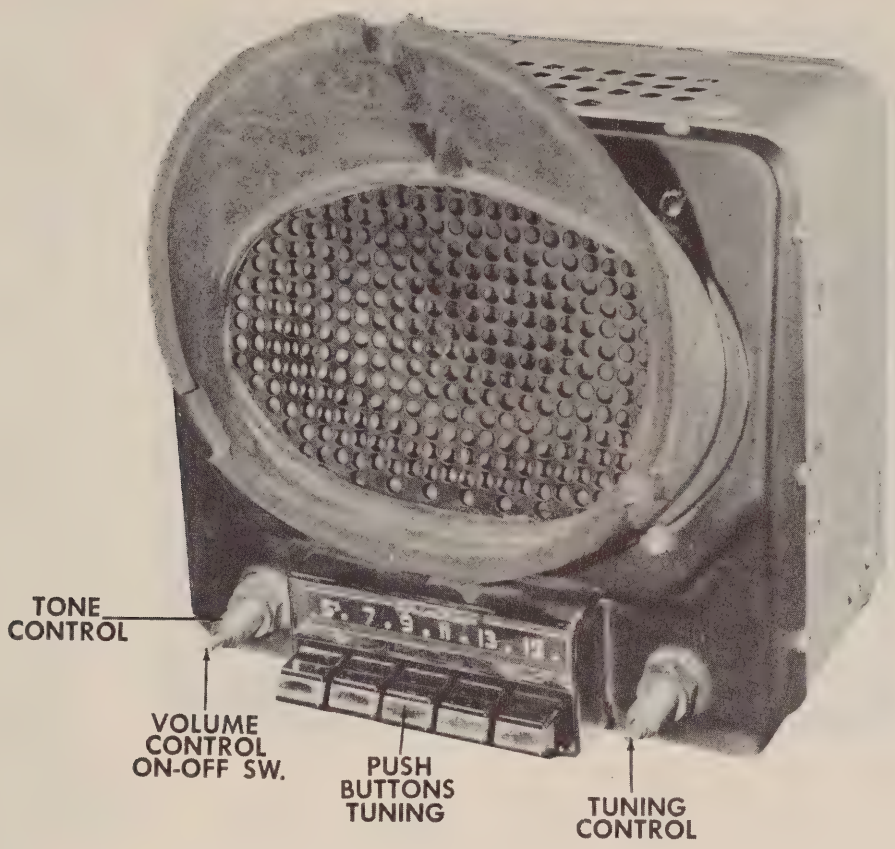


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PONTIAC
MODELS 984592, 984688

PROPERTY OF
L. F. BLANKENSHIP
3924 MADE ST
DENVER, COLORADO

PONTIAC
MODELS 984592, 984688



PONTIAC
MODELS 984592, 984688

TRADE NAME	Pontiac Models 984592, 984688
SUPPLIER	Pontiac Motors Div., General Motors, Pontiac Mich.
TYPE SET	Battery Operated Custom Built Automotive Superheterodyne Receiver
TUBES (EIGHT)	Types 6SK7 or 6BA6 RF Amp., 6SA7 or 7Q7 or 6BE6 Conv., 6SK7 or 6BA6 IF Amp., 6SQ7 or 6AV6 Det.-AVC-AF Amp., 6SQ7 or 6AV6 Phase Inv., (2) 6V6GT or (2) 7C5 Audio Output, 0Z4 Rectifier
POWER SUPPLY	6 Volt Storage Battery RATING 7.6Amp. @ 6.3Volts DC
TUNING RANGE—BROADCAST	550-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8, (grid), of 6SA7, (V2). Low side to chassis.	260KC (400∿mod)	High freq. end stop.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output.
2.	68MMF	High side to ant. receptacle. Low side to chassis.	1615KC	High freq. end stop. Check core of L5. Slotted end of core should extend 1-25/32 in. from mounting end of coil form.	"	A5, A6 A7	"
3.	"	"	1100KC	Tune for max. output.	"	A8, A9	"
4.	"	"	1615KC	High freq. end stop.	"	A6, A7	"

TUNE TO 1100KC AS IN STEP 3. IF NECESSARY MOVE POINTER BY MEANS OF POINTER ADJUST SCREW TO 1100 ON DIAL SCALE.
AFTER SET IS INSTALLED, FULLY EXTEND ANTENNA AND TUNE IN A WEAK STATION BETWEEN 600 AND 1000KC. RETOUCH A7 FOR MAXIMUM VOLUME.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PONTIAC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6SK7	6SK7	8N	
B	RF Amplifier	6BA6	6BA6	7BK	
V2A	Converter	6SA7	6SA7	8R	
B	Converter	7Q7	7Q7	8AL	
C	Converter	6BE6	6BE6	7CH	
V3A	IF Amplifier	6SK7	6SK7	8N	
B	IF Amplifier	6BA6	6BA6	7BK	
V4A	Det. -AVC-AF Amp	6SQ7	6SQ7	8Q	
B	Det. -AVC-AF Amp	6AV6	6AV6	7BT	
V5A	Phase Detector	6SQ7	6SQ7	8Q	
B	Det. -AVC-AF Amp	6AV6	6AV6	7BT	
V6A	Audio Output	6V6GT	6V6GT	7AC	
B	Audio Output	7C5	7C5	6AA	
V7A	Audio Output	6V6GT	6V6GT	7AC	
B	Audio Output	7C5	7C5	6AA	
V8	Rectifier	0Z4	0Z4	4R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PONTIAC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	10	400	M908	AFH3-127		UP15D45C		TVL-3733	▲ Filter
B	15	400							■ Filter
C	20	25							Audio Output Cathode
C2	.05	200	6537	P288-05	DF-503	PJ2S5		2TM-S5	AVC Filter
C3	33	500	G-330						RF Coupling †
C4	39	500	G390	1469-00004		5R5Q4		MS-44	Fixed Trimmer
C5	180		7257424				N150L-181		Fixed Trimmer
C6	.05	400	6537	P488-05	DF-503	PTE4S5		4TM-S5	Screen Bypass
C7	10	500	G100	1468-00001	D6-100	5W5Q1	GP1K-100	MS-41	IF Coupling
C8	.003	600	E302	P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	Audio Coupling
C9	.002	600	E202	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Tone Comp.
C10	68	500	G680	1469-00007	D6-680	5W5Q7	GP1K-680	MS-47	Tone Comp.
C11	.0025	400	7240578	P688-0022	D6-252	PTE6D22	GP2-333-252	6TM-D22	Tone Comp.
C12	.001	600	6527	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	AF Amp. Plate Bypass
C13	.01	600	6533	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C14	.02	400	6534	P488-02	DF-203	PTE6S2		6TM-S2	Audio Coupling
C15	.006	1000	H602	P1088-006		PTE16D6		MB-D6	Audio Output Plate
C16	.006	1600	H602	P1688-006		PTE16D6		MB-D6	Buffer Cap.

† Model 984688 Uses 5MMF In This Application (Part No. 1219862)

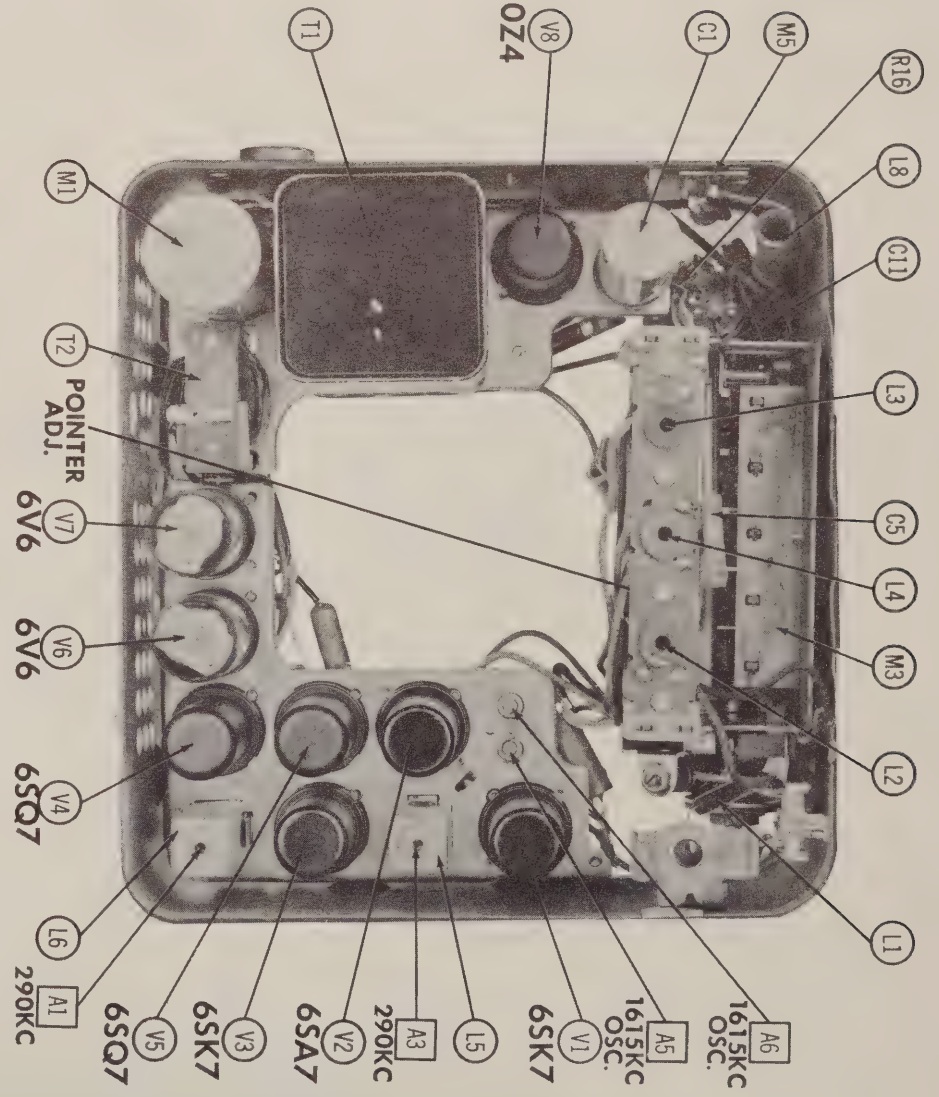
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PONTIAC PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	Switch		7260043				Tone Control - Panel
B	1Meg	½					Volume Control & On/Off Sw. Tapped @ 200KΩ Rear

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PONTIAC PART No.	IRC PART No.	IDENTIFICATION CODES
R2	150Ω	½	A151	BTS-150	RF Amp. Cathode
R3	2.2Meg	½	A225		RF Amp. Grid
R4	15KΩ	1	B153		RF Amp. Plate
R5	330KΩ	½	A334	BTS-330K	Mixer Grid
R6	22KΩ	½	A223		Osc. Grid
R7	6.8Meg	½	A685	BTS-6.8Meg	AVC Network
R8	22KΩ	1		BTS-22K	Screen Dropping - See note 1.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PONTIAC PART No.	IRC PART No.	
R9	47KΩ	1		BTA-47K	Screen Dropping - See note 2.
R10	270Ω	1/2	A271	BTS-270	IF Amp. Cathode
R11	1Meg	1/2	A105	BTS-1Meg	AVC Network
R12	62KΩ	1/2			Tone Compensation - See note 3.
R13	180KΩ	1/2	1215560	BTS-180K	Tone Compensation
R14	47KΩ	1/2	A473	BTS-47K	Diode Filter
R15	330KΩ	1/2	A334	BTS-330K	Diode Load
R16	180KΩ	1/2	1215560	BTS-180K	Tone Compensation
R17	33Ω	1/2	A330		AF Amp. Cathode
R18	220KΩ	1/2	A224	BTS-220K	AF Amp. Plate
R19	1Meg	1/2	A105	BTS-1Meg	Diode Load
R20	220KΩ	1/2	A224	BTS-220K	Phase Inverter Plate
R21	750Ω	1/2			Phase Inverter Cathode - See note 4.
R22	1800Ω	1/2		BTS-1800	Phase Inverter Cathode - See note 5.
R23	100KΩ	1/2	A104	BTS-100K	Phase Inverter Grid
R24	180KΩ	1/2	1215560	BTS-180K	Voltage Divider
R25	390Ω	1	B391	BW-1-390	Output Cathode - Wire Wound
R26	220KΩ	1/2	A224	BTS-220K	Output Grid
R27	270KΩ	1/2	A274	BTS-270	Output Grid
R28	270Ω	1/2	A271	BTS-270	Feedback Network
R29	220Ω	1	B221	BTA-220	Hash Suppressor
R30	1800Ω	2	*	BW-2-1800	Filter - Wire Wound

* When ordering from manufacturer use 2700Ω 2W (Part #C272) and 5600-1W (Part #B562) in parallel.
Note 1. Some models use a 15KΩ resistor in this application.
Note 2. Not used in all models.
Note 3. Some models use a 56KΩ reistor in this application.
Note 4. Some models use a 680Ω resistor in this application.
Note 5. Some models use a 2200Ω resistor in this application.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PONTIAC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6.3VDC @4.1A	550VCT .060ADC			7255881	P-4065 ①	P-4076	VT-5 ①

① Drill New Mounting Holes

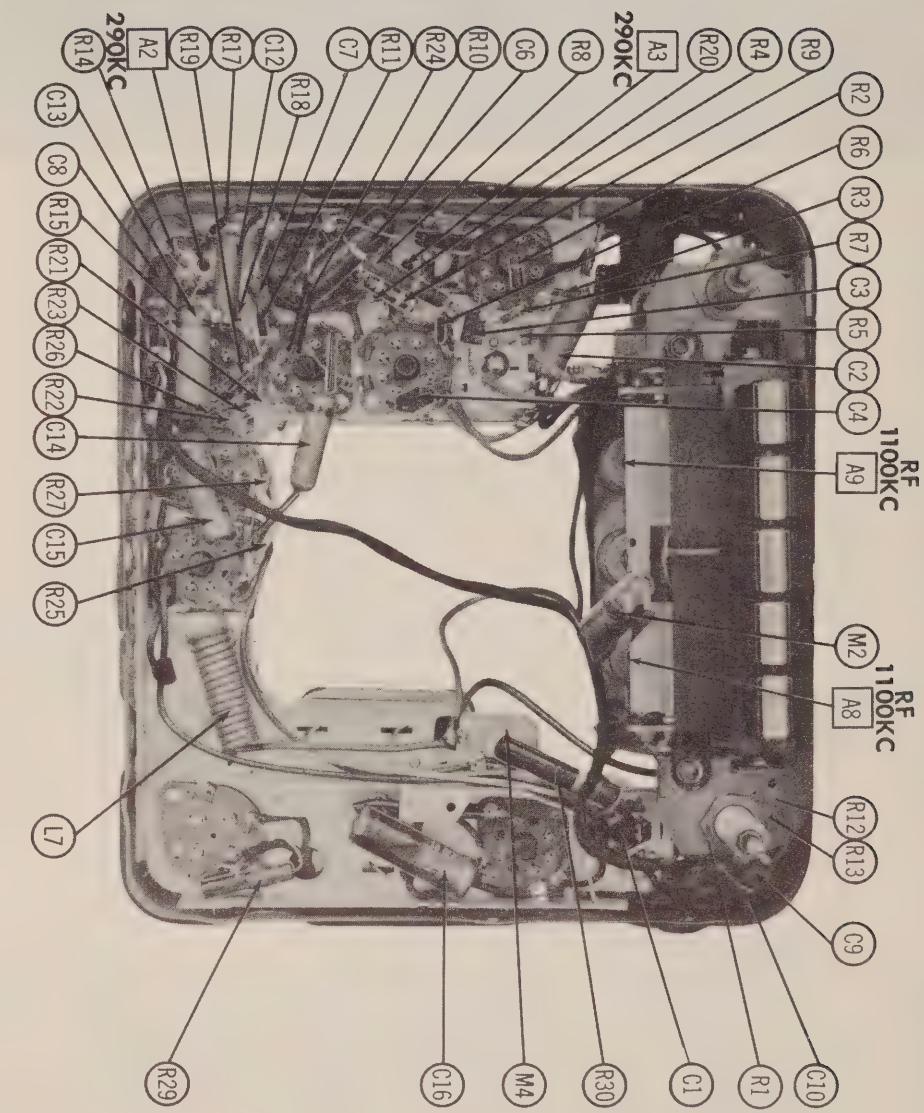
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PONTIAC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	7KΩ CT	3.6Ω	500Ω CT	.5Ω	7240453	A-3823 ①	A-2936①	RO-303 ①	① Cut Mounting Tabs to duplicate original.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	PONTIAC PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3.6Ω	7260410	St-810 Mod. P-69V	69A2	
	CONE DIA.	V. C. DIA.				
SP1B	6" X 9"	1"				

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	PONTIAC PART No.	MERIT PART No.	
L1	Ant. Hash Choke	.8Ω		7255738		
L2	Ant. Coil	9.4Ω		7258914		
L3	RF Coil	9.4Ω		7258914		
L4	Osc. Coil	1.2Ω	5.6Ω	7258911		
L5	Input IF	35Ω	35Ω	1219508		
L6	Output IF	35Ω	35Ω	1219509		
L7	Fil. Choke	0Ω		7241708		
L8	Hash Choke	0Ω		1217846		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				PONTIAC PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Interrupter	6.3 DC	115∿	8542	5301	5301	

DIAL LIGHTS

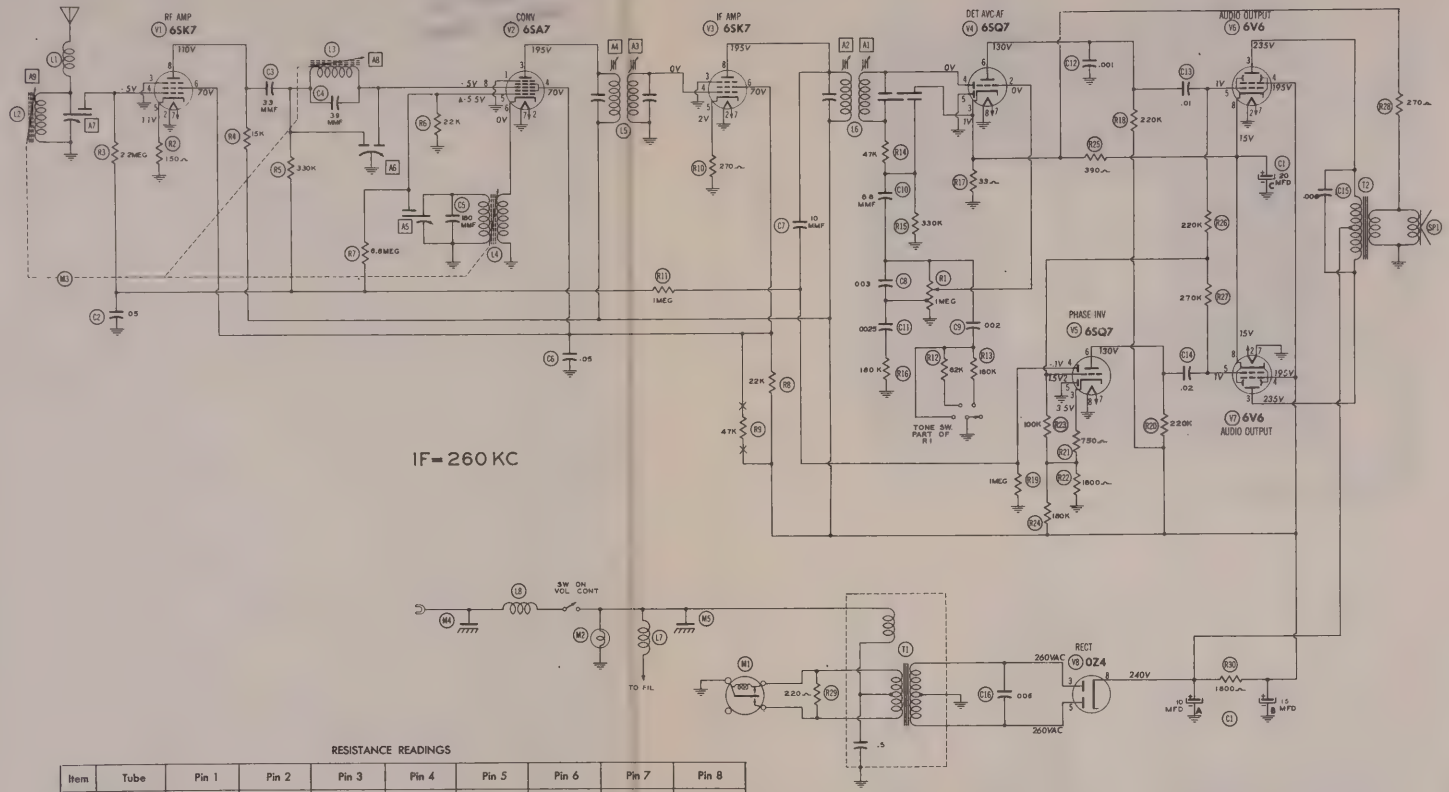
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PONTIAC PART No.		
M2	Bayonet	6-8	.25	Blue			Type #44

MISCELLANEOUS

ITEM No.	PART NAME	PONTIAC PART No.	NOTES
M3	Tuner Unit		
M4	Spark Plate	1219768	
M5	Spark Plate	1217848	
A7	Trimmer	7257959	Ant. Adj.
A6, A5	Dual Trimmer	7242454	RF Adj. / Osc. Adj.
	Pointer Assy.	7260209	
	Dial	7257721	
	Knob	514608	Control
	Knob	514782	Dummy
	Knob	514784	Tone

PUSH BUTTON ADJUSTMENT

Pull button to the right and out. Tune in desired station manually. Push button in as far as it will go.



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SK7	0Ω	0Ω	0Ω	3.2Meg	150Ω	†16KΩ	.4Ω	†16KΩ
V 2	6SA7	0Ω	.4Ω	†1.8KΩ	†16KΩ	22KΩ	1.2Ω	0Ω	2Meg
V 3	6SK7	0Ω	0Ω	0Ω	40Ω	270Ω	†16KΩ	.4Ω	†1.8KΩ
V 4	6SQ7	0Ω	30Ω	33Ω	375KΩ	0Ω	†220KΩ	.4Ω	0Ω
V 5	6SQ7	0Ω	100KΩ	2.5KΩ	1Meg	0Ω	†220KΩ	.4Ω	0Ω
V 6	6V6GT	INF	0Ω	†250Ω	†1.8KΩ	320KΩ	0Ω	.4Ω	423Ω
V 7	6V6GT	INF	0Ω	†250Ω	†1.8KΩ	370KΩ	33Ω	.4Ω	423Ω
V 8	0Z4	0Ω	INF	300Ω	INF	295Ω	INF	INF	110KΩ

† MEASURED FROM PIN 8 OF V8
▲ TAKEN WITH VACUUM TUBE VOLTMETER

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

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RCA VICTOR
MODEL 45-EY-2 (Ch. RS-138, -A, -H)

RCA VICTOR
MODEL 45-EY-2 (Ch. RS-138, -A, -H)

RCA VICTOR
MODEL 45-EY-2 (Ch. RS-138, -A, -H)

TRADE NAME	RCA Victor, Model 45-EY-2 (Ch. RS-138, A, H)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N. J.
TYPE SET	AC Operated Audio Amplifier with Automatic Record Changer
POWER SUPPLY	110-120 Volts AC RATING .25 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT RP-190-1 SEE PHOTOFACT SET #144- FOLDER #7.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	AF Amplifier	12SQ7	12SQ7	8Q	12AV6 used in chassis RS138
V2	Audio Output	50L6GT	50L6GT	7AC	50B5 used in chassis RS138
V3	Rectifier	35W4GT	35W4GT	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	75980	PRS150/80-		BRD8415		TVA-3455	Filter (Red)
B	50	150		40					Filter (Green)
C2	82	500	39626	SI82			GP1K-820		Tone Comp.
C3	.005	200	73920	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C4	.01	200	73561	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C5	.01	200	73561	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C6	.033	600	70613	P688-033		PTE6S3		6TM-S3	Audio Output Plate
C7	.1	400	73551	P488-1		PJ4P1		4TM-P1	Line Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	76201	Q13-137X	AG-63-Z	BT-72	Volume Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R1A per instructions.

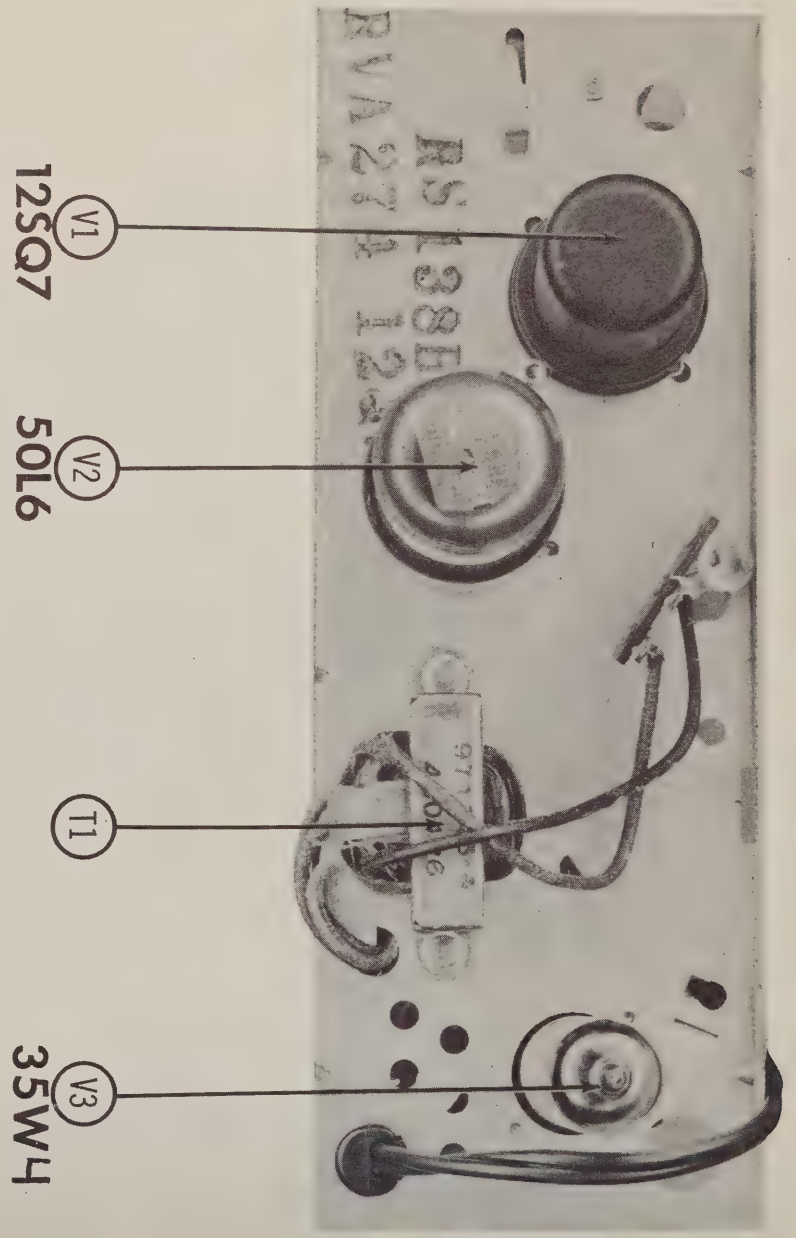
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	47KΩ	½		BTS-47K	Tone Compensation
R3	4.7Meg	½		BTS-4.7Meg	AF Amp. Grid
R4	270KΩ	½		BTS-270K	AF Amp. Plate
R5	270KΩ	½		BTS-270K	Output Grid
R6	150Ω	½		BTS-150	Output Cathode
R7	1500Ω	½		BTS-1500	Filter
R8	33Ω	½	73237		Surge Limiter - Wire Wound
R9	120Ω	5	72314	1 3/4A-125	Filament Dropping - Wire Wound

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2.3KΩ	3.3Ω	370Ω Tapped @ 40Ω	.7Ω	75939	A-3332	A-3031 ①		① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	RCA PART No.	VIKING PART No.	QUAM PART No.	
SP1A	P. M.	3.3Ω	922258-5W 922258-4 ③	46J6 ②	46A07 ②	② Trim Flange ③ Alternate speaker
	CONE DIA.	V. C. DIA.				
SP1B	4"X6"	9/16"				

PHONO CARTRIDGE and NEEDLE

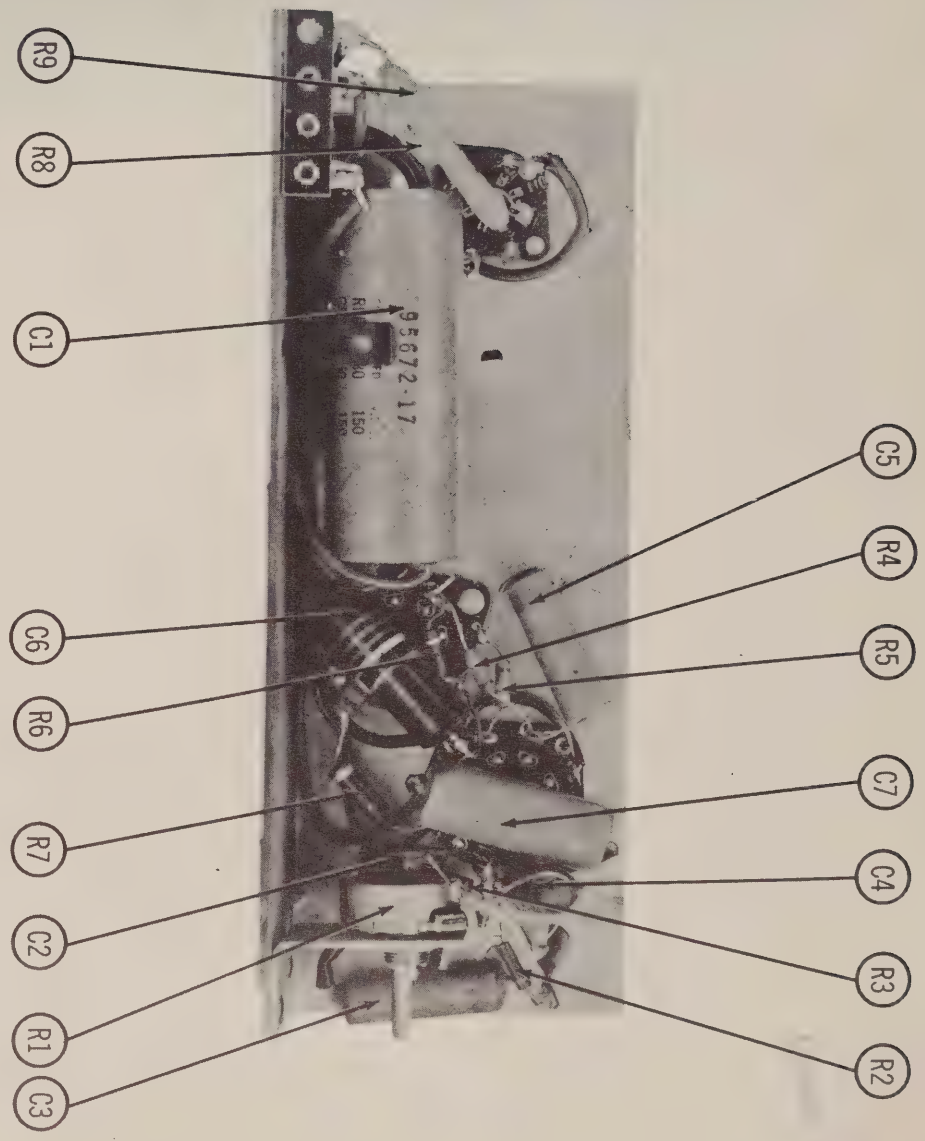
ITEM No.	REPLACEMENT DATA							REMARKS
	RCA PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	75476	CAC-J or AC-J	Q-33 A-1	W31AR	A53MG	34	0-1 or S-1	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

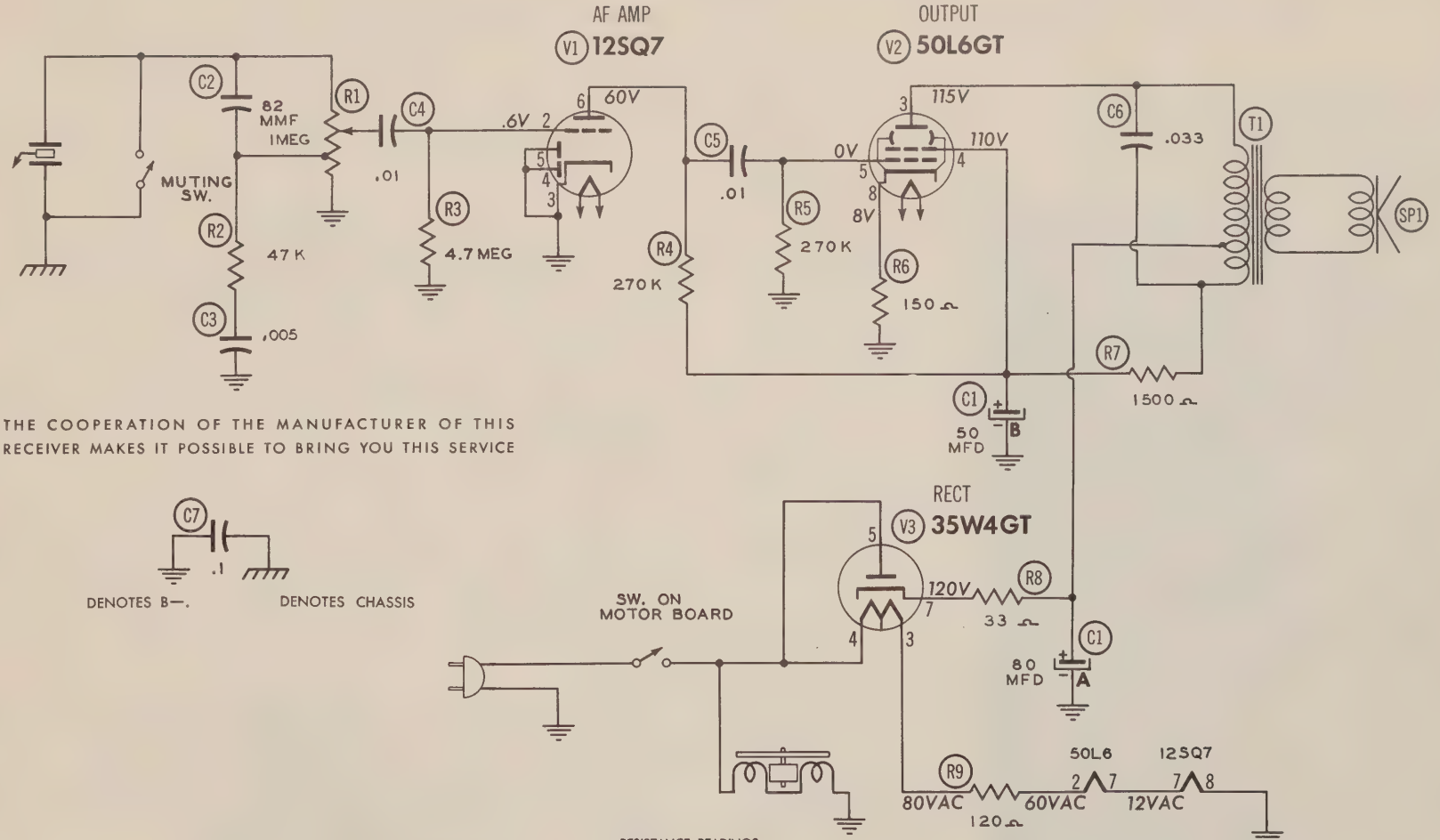
MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
	Cabinet Knob	Y2325 74666	Plastic

CHASSIS—BOTTOM VIEW



RCA VICTOR
MODEL 45-EY-2



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SQ7	INF	4.7Meg	0Ω	0Ω	0Ω	†270KΩ	12Ω	0Ω
V 2	50L6GT	INF	62Ω	†400Ω	†1.5KΩ	270KΩ	†73Ω	12Ω	150Ω
V 3	35W4	217Ω	INF	182Ω	217Ω	217Ω	200Ω	15KΩ	

† MEASURED FROM PIN 7 OF V3

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165-9

1 - DC Voltage measurements are at 20,000 ohms per volts, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PROPERTY OF
L. F. BLANKENSHIP
3[illegible]
DENVER

REVERE
MODEL TR-200

TRADE NAME	Revere Model TR-200
MANUFACTURER	Revere Camera Co., 320 E. 21st St., Chicago, 16, Ill.
TYPE SET	AC Operated Tape Recorder with AM Superheterodyne Receiver
TUBES (EIGHT)	Types 6BE6 Conv., 6BA6 IF Amp., 5879 or 6J7 Playback Pre-Amp., 6SJ7 or 6J7 AF Amp., 6SJ7 2nd AF Amp., 6V6GT Audio Output, 6K6GT Bias Osc., 6X5GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .57 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7, (grid) of 6BE6, (V1). Low side to chassis.	455KC (400∿mod)	Tuning gang fully open.	Across voice coil.	A1, A2 A3	Adjust for maximum output.
2.		Loop	1620KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune for max. output.	"	A5	"

FOR SERVICE INFORMATION ON MECHANICAL UNIT - SEE MODEL T-100 PHOTOFACT SET #149 - FOLDER #11.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		REVERE PART No.	STANDARD REPLACEMENT		
V1	Converter	6BE6	6BE6	7CH	
V2	IF Amplifier	6BA6	6BA6	7BK	
V3A	Playback PreAmp	5879	5879	9AD	
B	Playback PreAmp.	6J7	6J7	7R	
V4A	1st AF Amplifier	6SJ7	6SJ7	8N	
B	1st AF Amplifier	6J7	6J7	7R	
V5	2nd AF Amplifier	6SJ7	6SJ7	8N	
V6	Audio Output	6V6GT	6V6GT	7AC	
V7	Bias Oscillator	6K6GT	6K6GT	7S	
V8	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

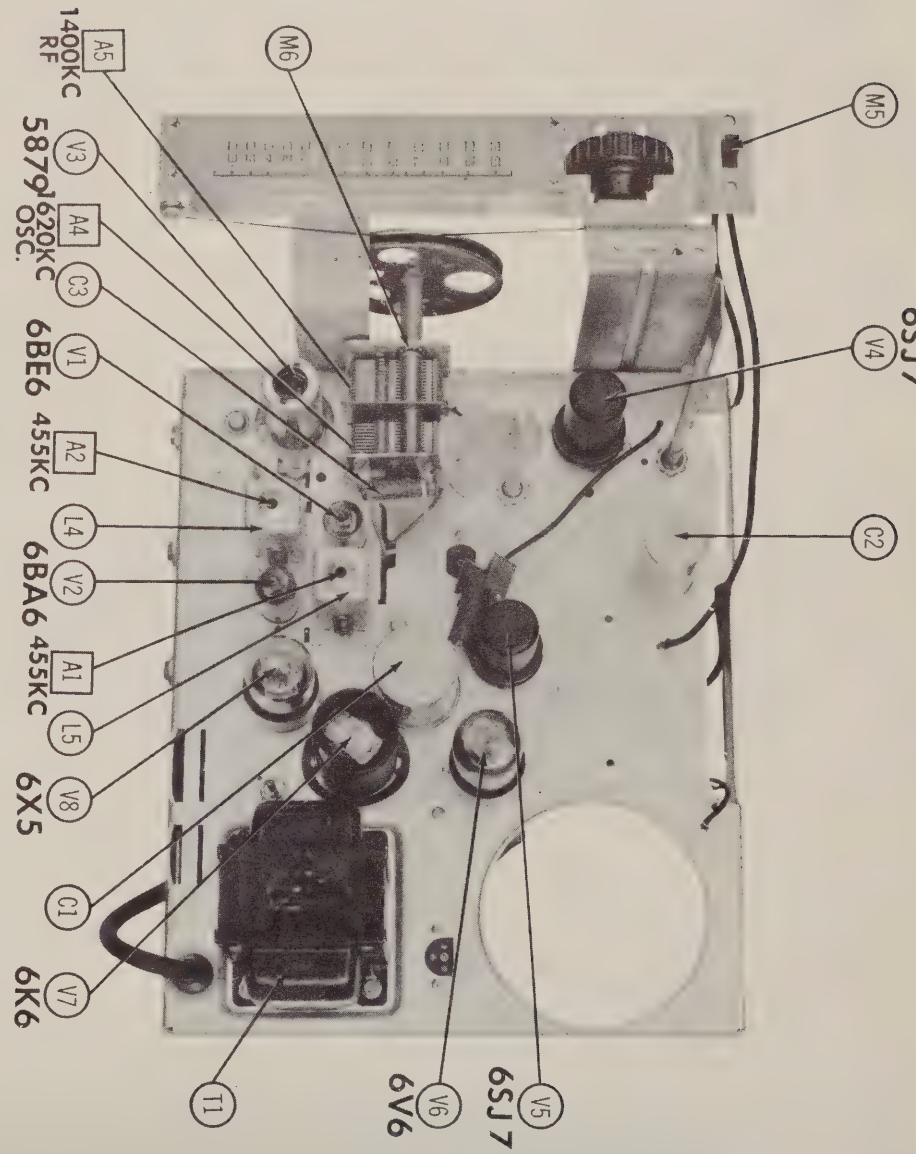
ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	REVERE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	10	450		AFH3-187		UPT301		TVL-3754	▲ Filter
B	30	350							■ Filter
C	25	25							▲ Audio Output Cathode
C2A	10	350		AFH3-27		UP11135		TVL-3690	■ Decoupling
B	10	350							▲ Decoupling
C	10	350							Decoupling
C3	.05	100		P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C4	50	500		1469-00005		5R5Q5		MS-45	Osc. Grid Cap.
C5	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Osc. Anode Bypass
C6	.01	200		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AVC Filter
C7A	100		♦	S1100	♦PC-50	5W5T1	GP1K-101	♦100C1	Diode RF Filter
B	100			S1100		5W5T1	GP1K-101		Diode RF Filter
C8	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C9	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Audio Coupling
C10	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Playback Pre Amp. Screen
C11	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Playback Pre Amp. Plate
C12	100	500		1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Tone Comp.
C13	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C14	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	1st AF Amp. Screen
C15	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C16	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C17	.1	200		P288-1	DF-104	PTE4P1		2TM-P1	2nd AF Amp. Cathode
C18	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	2nd AF Amp. Screen
C19	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C20	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Tone Comp.
C21	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Tone Comp.
C22	500			S1500	D6-501	5W5T5	GP2K-501	5GA-T5	Tone Comp.
C23	.005	400		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C24	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Fixed Trimmer
C25	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Fixed Trimmer
C26	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Line Filter
C27	10			S110NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer *
C28	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Bias Osc. Plate *
C29	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Bias Osc. Screen *
C30	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling *

* Not used in all models.
♦ Items C7A, C7B, and R26 are combined in one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	REVERE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	100KΩ		TRA-320-B				Tone Control - Panel
B	500KΩ						Volume Control & Sw. - Rear

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	REVERE PART No.	IRC PART No.	
R2	22KΩ	½		BTS-22K	Mixer Grid
R3	15KΩ	2		BTB-15K	Screen Dropping
R4	1Meg	½		BTS-1Meg	IF Amp. Grid
R5	220Ω	½		BTS-220	IF Amp. Cathode
R6	2.2Meg	½		BTS-2.2Meg	AGC Network
R7	820KΩ	½		BTS-820K	Playback Pre Amp. Screen - See note 1.
R8	56KΩ	1		BTA-56K	Playback Pre Amp. Plate
R9	150KΩ	½		BTS-150K	Playback Pre Amp. Decoupling
R10	12Meg	½		BTS-12Meg	Playback Pre Amp. Grid - See note 2.
R11	4.7Ω	½			Series Filament
R12	10KΩ	½		BTS-10K	Tone Compensation
R13	820KΩ	½		BTS-820K	Tone Compensation
R14	14KΩ	½		BTS-15K	Tone Compensation - See note 3.
R15	270KΩ	½		BTS-270K	Microphone Jack Shunt - See note 4.
R16	1Meg	½		BTS-1.2Meg	Tone Compensation
R17	1Meg	½		BTS-1.2Meg	1st AF Amp. Screen
R18	240KΩ	½		BTS-220K	1st AF Amp. Plate
R19	12Meg	½		BTS-12Meg	1st AF Amp. Grid - See note 2.
R20	1200Ω	½		BTS-1200	2nd AF Amp. Cathode - See note 5.
R21	100KΩ	½		BTS-100K	2nd AF Amp. Plate
R22	430KΩ	½		BTS-470K	2nd AF Amp. Screen
R23	680KΩ	½		BTS-680K	Feedback Network
R24	240KΩ	½		BTS-220K	2nd AF Amp. Grid
R25	470Ω	1		BTA-470	2nd AF Amp. Cathode - See note 6.
R26	47KΩ	½	♦	BTS-47K	RF Filter
R27	470KΩ	½		BTS-470K	AGC Network
R28	36KΩ	½		BTS-36K	Decoupling - See note 7.
R29	390KΩ	½		BTS-390K	Tone Compensation - See note 8.
R30	36KΩ	½		BTS-39K	Tone Compensation - See note 7.
R31	390KΩ	½		BTS-390K	Tone Compensation
R32	68KΩ	½		BTS-68K	Tone Compensation
R33	22KΩ	½		BTS-22K	Output Grid
R34	10KΩ	2		BTB-10K	Output Screen
R35	10KΩ	2		BTB-10K	Decoupling
R36A	1300Ω	5			Filter - Wire Wound
B	5000Ω	5			Filter - Wire Wound
R37	8.2Ω	1			Voice Coil Shunt
R38	470K	½		BTS-470K	Tone Compensation

Note ♦, Items R26, C7A, C7B are combined in one unit.
Note 1. Some models use a 1Meg resistor in this application.
Note 2. Some models use a 10Meg resistor in this application.
Note 3. Some models use a 82KΩ resistor in this application.
Note 4. Some models use a 220KΩ resistor in this application.
Note 5. Some models use a 1000Ω resistor in this application.
Note 6. Some models use a 470KΩ resistor in this application.
Note 7. Some models use a 47KΩ resistor in this application.
Note 8. Some models use a 270KΩ resistor in this application.

TRANSFORMER (POWER)

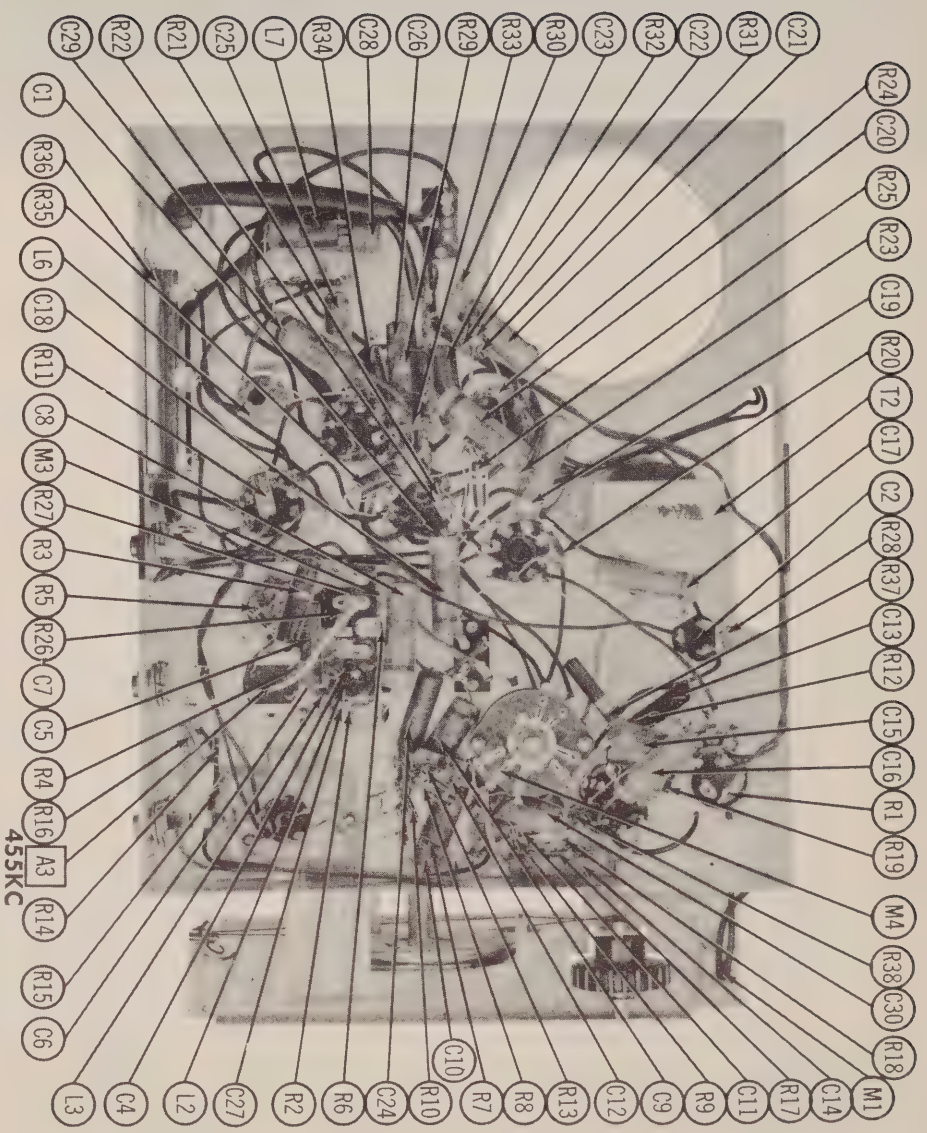
ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	REVERE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ .057A	700VCT .050ADC	6.3VAC @ 2.5A		TRA-400	P-3160	P-6011 ①	PH-70B ①

① Mount vertically with Universal mounting brackets.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REVERE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6.2KΩ	3.3Ω	450Ω	.5Ω	TRA-401	A-3849	A-2902	RO-303	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	REVERE PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P.M.	3.3Ω	TRA-600		57A1	Use Universal mounting bracket.
	CONE DIA.	V. C. DIA.				
SP1B	5"X7"	9/16"				

COILS (RF-IF)

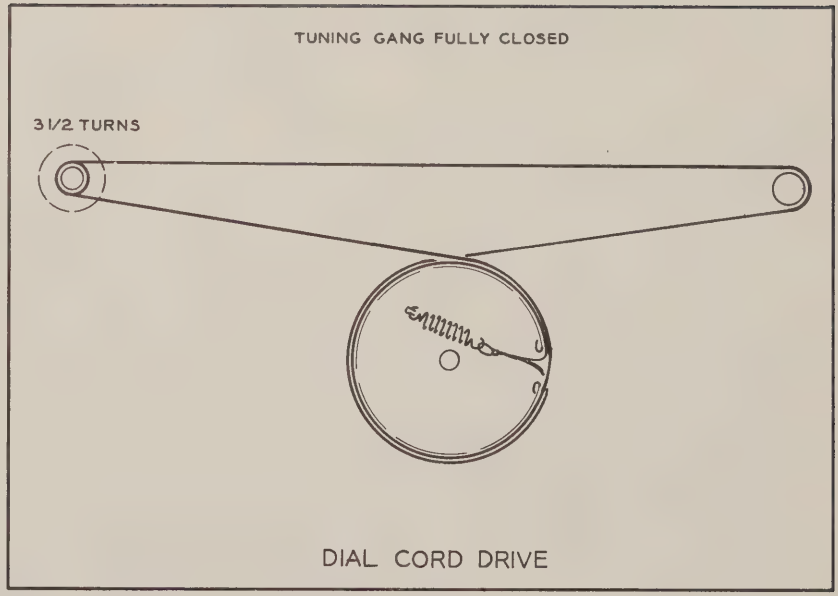
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	REVERE PART No.	MERIT PART No.	
L1	Loop Ant.	1.3Ω		TR-3205		
L2	Parasitic Supp.	0Ω				
L3	AM Osc. Coil	3Ω		X-1800		Tap @ .3Ω
L4	Input IF	14Ω	14Ω	XD-1730		
L5	Output IF	13Ω	5.8Ω	XD-1731		
L6	Bias Osc. Coil	5.2Ω	10.5Ω	TRA-402		
L7	RF Choke	34Ω				

DIAL LIGHTS

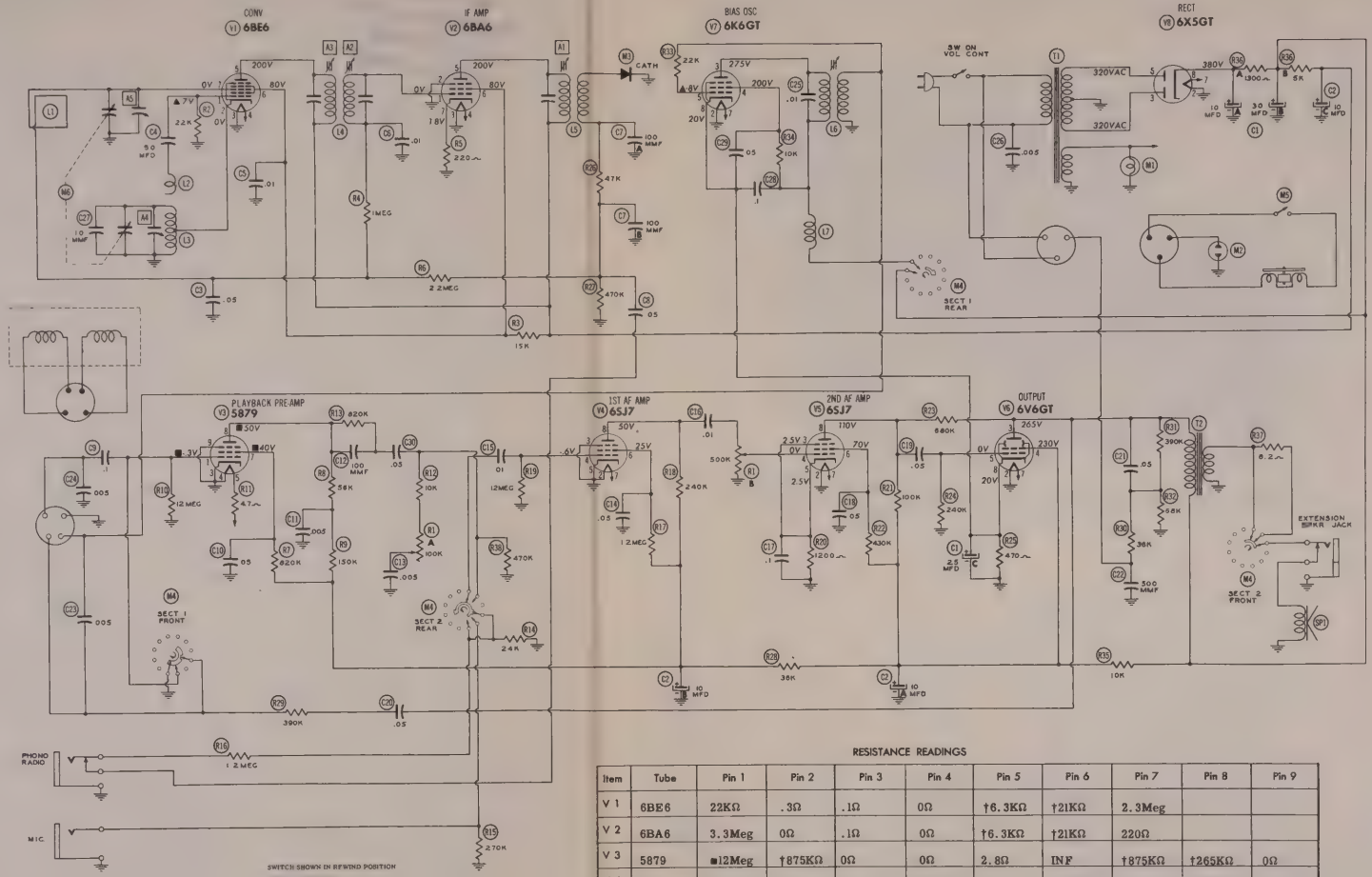
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					REVERE PART No.		
M1	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	REVERE PART No.	NOTES
M2	Neon Bulb		NE-45
M3	Crystal		1N60
M4	Switch	TRA-511	Function
M5	Switch		Motor On/Off
M6	2Gang Var. Cap.		



DIAL CORD DRIVE



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BE6	22KΩ	.3Ω	.1Ω	0Ω	†6.3KΩ	†21KΩ	2.3Meg		
V 2	6BA6	3.3Meg	0Ω	.1Ω	0Ω	†6.3KΩ	†21KΩ	220Ω		
V 3	5879	■12Meg	†875KΩ	0Ω	0Ω	2.8Ω	INF	†875KΩ	†265KΩ	0Ω
V 4	6SJ7	0Ω	0Ω	0Ω	12Meg	0Ω	†1.2Meg	.1Ω	†300KΩ	
V 5	6SJ7	0Ω	0Ω	1.2KΩ	60Ω	1.2KΩ	†440KΩ	.1Ω	†110KΩ	
V 6	6V6GT	0Ω	0Ω	†1.7KΩ	†11KΩ	240KΩ	†1.7KΩ	.1Ω	480Ω	
V 7	6K6GT	0Ω	.1Ω	†1.3KΩ	†11KΩ	22KΩ	470Ω	0Ω	470Ω	
V 8	6X5GT	INF	0Ω	165Ω	2.8Ω	160Ω	INF	.1Ω	80KΩ	

ALL MEASUREMENTS TAKEN IN "RADIO" POSITION, UNLESS NOTED
† MEASURED FROM PIN 8 OF V8
■ MEASURED IN "PLAY BACK" POSITION
▲ TAKEN WITH VACUUM TUBE VOLTMETER

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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E F BLANKENSHIP
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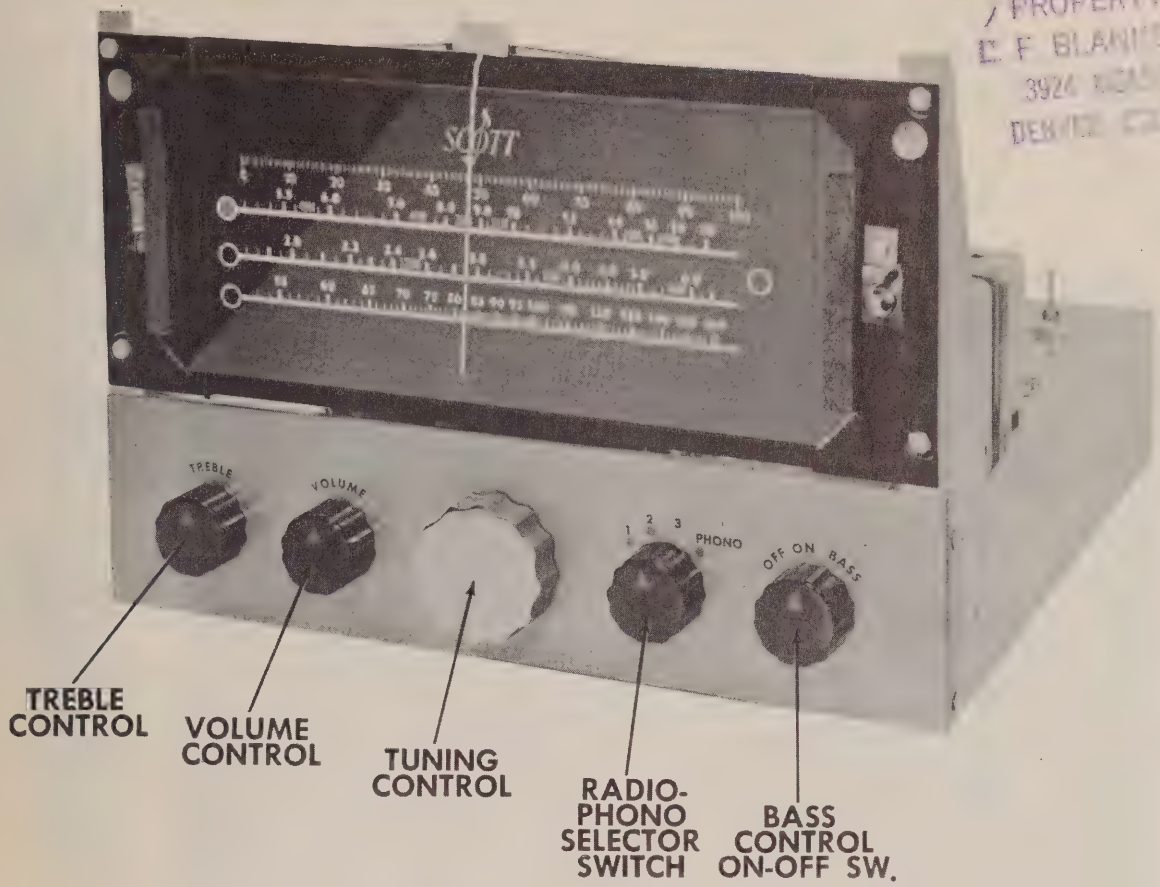
DENVER COLORADO

SCOTT
MODEL 515



SCOTT
MODEL 515

TRADE NAME	Scott (E.H.) Model 515
MANUFACTURER	Scott Radio Labs. 4541 Ravenswood Ave., Chicago, Ill.
TYPE SET	AC Operated Radio - Phono Combination Superheterodyne Receiver for Custom Insatllations.
TUBES (TWELVE)	Types 6BA6 RF Amp., 6C4 Mixer, 6C4 Osc. 6BA6 1st. IF Amp., 6BA6 2nd. IF Amp. 6SC7 or 6SL7 Phono Pre-Amp., 6SQ7 Det.-AVC-AF Amp., 6SN7GT AF Amp. - Cathode Follower, 6SN7GT Phase Inv., (2) 6L6G Audio Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC — RATING 1.35 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	535-1620KC — SHORT WAVE 2-6MC, 6-18MC

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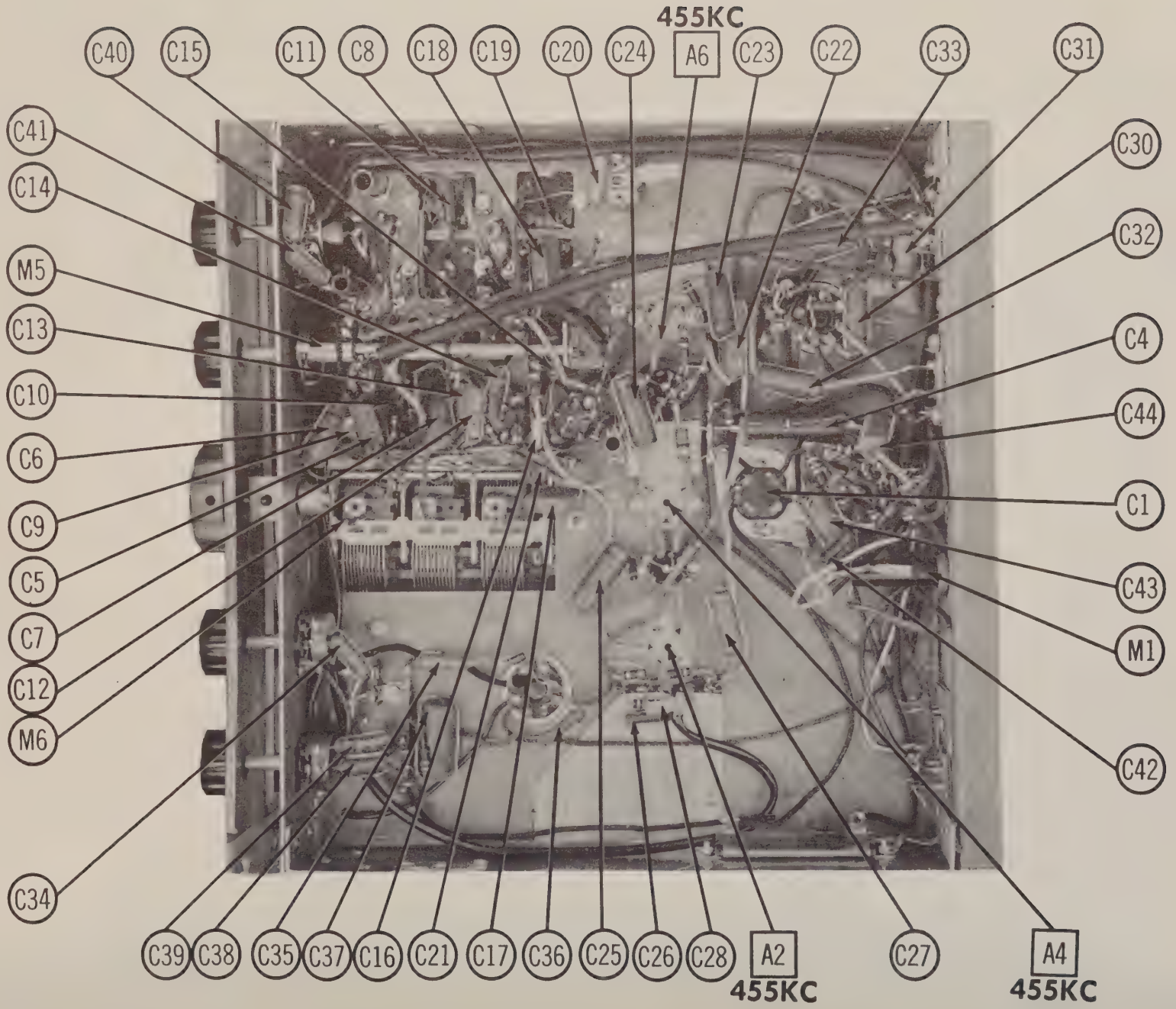
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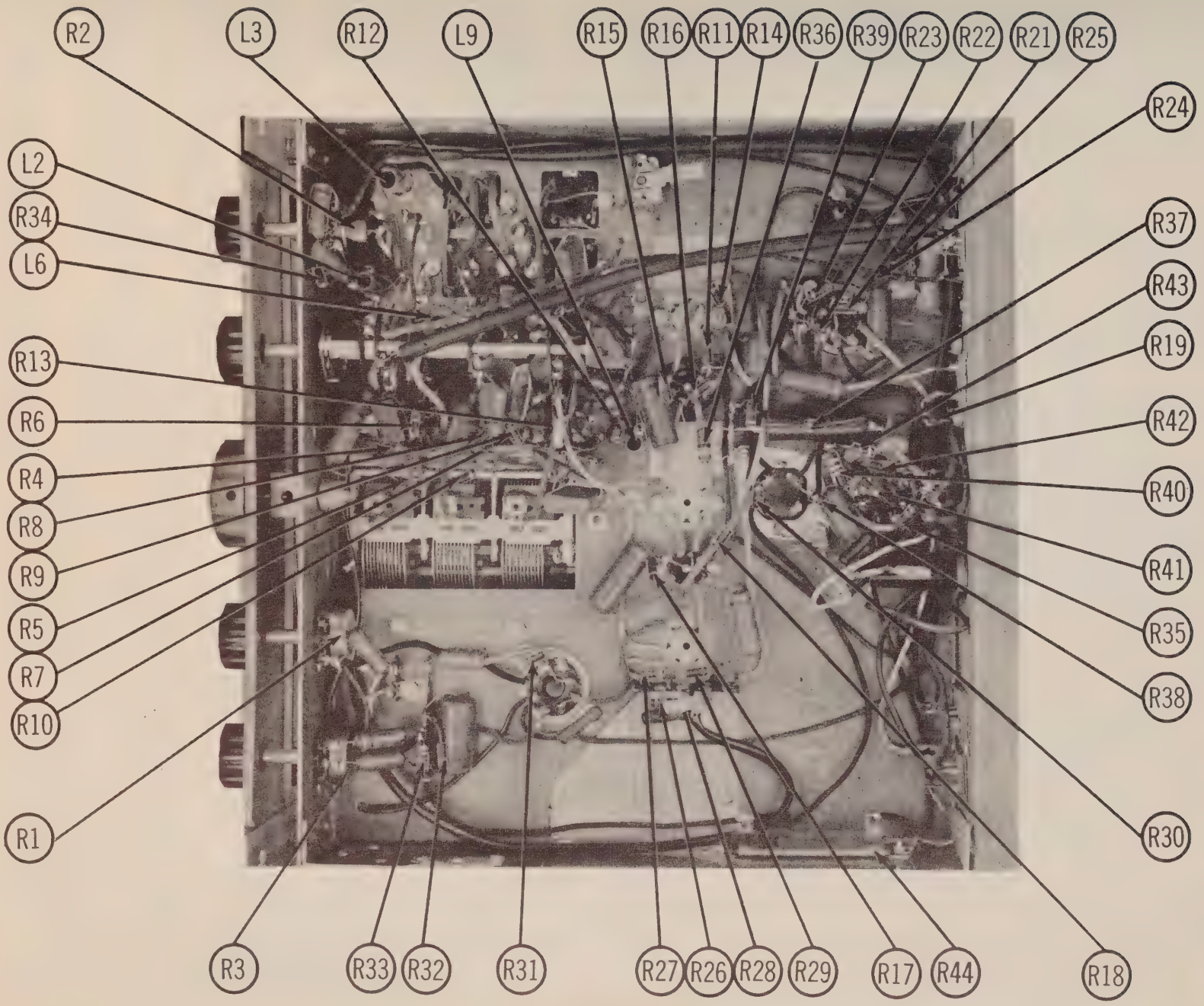
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R10
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R31
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R26
R28
R29
R17
R44
R18

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	92G2871	6BA6	7BK	
V2	Mixer	92B596	6C4	6BG	
V3	Oscillator	92B597	6C4	6BG	
V4	1st. IF Amp.	92G2871	6BA6	7BK	
V5	2nd. IF Amp.	92G2871	6BA6	7BK	
V6A	Phono Pre-Amp.	92E4695	6SC7	8S	
B	Phono Pre Amp.		6SL7	8B	
V7	Det-AVC-1st. AF Amp.	92V4632	6SQ7	8Q	
V8	2nd. AF Amplifier-Cathode follower	92A230	6SN7GT	8BD	
V9	Phase Inverter	92A230	6SN7GT	8BD	
V10	Audio Output	92A233	6L6G	7AC	
V11	Audio Output	92A233	6L6G	7AC	
V12	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	450	15L3588	AFH4-14		UPT222245		TVL-4763	▲ Filter
B	20	450							■ Filter
C	20	450							▲ Filter
D	20	450							Decoupling
C2	25	50	15B638	PRS50/25		BR255A		TVA-1306	Output Cathode
C3A	20	450	15L3588	AFH4-14		UPT222245		TVL-4763	■ Decoupling
B	20	450							Decoupling
C	20	450							▲ Decoupling *
D	20	450							▲ Decoupling
C4	25	25	15B795	PRS25/25		BR252A		TVA-1205	3rd AF Amp. Cathode
C5	240	500	15A366	1468-00025	D6-251	5W5T25	GP2K-241	1FM-325	RF Coupling
C6	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter
C7	.05	600	15L3467	P688-05	DF-503	PTE6S5		6TM-S5	RF Amp. Decoupling
C8	5000		15L3462	BPD-005	DD-502	TM5D5	811-005	5HK-D5	RF Amp. Decoupling
C9	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	RF Amp. Cathode
C10	5000		15L3462	BPD-005	DD-502	TM-5D5	811-005	5HK-D5	RF Amp. Cathdde
C11	25	500	15E1849	1469-000025		5R5Q25		MS-425	Fixed Trimmer
C12	100		15L3460	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	RF Coupling
C13	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter
C14	.005	600	15H2603	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Osc. Coupling
C15	.005	600	15H2603	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Osc. Feedback
C16	51		15L3458				N330K-510		Osc. Grid Cap.
C17	6200	500	15A40						Fixed Trimmer
C18	1000	500	15A35	1464-001		1R5D1		MS-21	Fixed Trimmer
C19	30		15W4936		TCZ-30		NP0K-300		Fixed Trimmer
C20	460	500	15E1935						Fixed Trimmer
C21	1500		15L3459	SI1500	D6-152	TM5D15	GP2L-152	5HK-D15	RF Bypass
C22	.05	600	15L3467	P688-05	DF-503	PTE6S5		6TM-S5	Mixer Plate Dec.
C23	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter
C24	.05	600	15L3467	P688-05	DF-503	PTE6S5		6TM-S5	1st IF Amp. Dec.
C25	.05	600	15L3467	P688-05	DF-503	PTE6S5		6TM-S5	2nd IF Amp. Dec.
C26	100		15L3460	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Diode RF Filter
C27	.1	200	15S4298	P288-1	DF-104	PJ2P1		2TM-P1	AVC Filter
C28A	100		15D2923	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Diode RF Filter
B	100			SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Diode RF Filter
C29	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling *
C30	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C31	.015	400		P488-015		PTE6S15		6TM-S15	Tone Comp.
C32	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C33	.1	600	15L3464	P688-1	DF-104	PTE6P1		6TM-P1	Audio Coupling
C34	.02	200	15U4580	P488-02	DF-203	PJ2S5		2TM-S2	Audio Coupling
C35	.01	200	15L3463	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C36	100		15L3460	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	1st. AF Amp. Plate
C37	.1	600	15L3468	P688-1	DF-104	PTE6P1		6TM-P1	Audio Coupling
C38	.01	200	15L3463	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C39	.005	600	15H2603	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.
C40	.005	600	15H2603	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Comp.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R48	10KΩ	1	70L3427	BTA-10K	3rd. AF Amp. Plate
R49	470KΩ	½	70L3404	BTS-470K	Output Grid
R50	470KΩ	½	70L3404	BTS-470K	Output Grid
R51	167Ω	5	70W4910		Output Cathode - Wire Wound
R52	300Ω	5		1 3/4A-300	Filter - Wire Wound
R53	1100Ω	5		1 3/4A-1100	Filter - Wire Wound
R54	1250Ω	5		1 3/4A-1250	Filter - See Note 1 Wire Wound

Note 1. Not used in all Models
Note 2. Some Models use a 470KΩ Resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1 *	117VAC @1.35A	720VCT .170ADC Tapped § @340VCT	5VAC @ 3A	6.3VAC @ 5.4A SEC.4 * 25VAC	91W4900			PV-200 ①

§ Tapped section of Sec. 1 Not used in all Models
* Secondary 4 not used in all Models
① Drill New Mounting Holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T2	5.2KΩ CT	7.5Ω	150Ω CT	.4Ω	91V4667				

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1A	PM	7.5Ω	85V4593 ①			① Co-Axial Type
	CONE DIA.	V. C. DIA.				
SP1B	12"	1"				

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SCOTT PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
L1	Loop Ant.	2.2Ω		1V4594		
L2	S.W. 1 Ant. Coil	1Ω		20W4915		Tap @ .2Ω
L3	S.W. 2 Ant. Coil	.2Ω		20W4916		
L4	Broadcast RF Coil	150Ω	4.2	20V4620		
L5	S.W. 1 RF Coil	.6Ω	.Ω	20W4917		
L6	S.W. 2 RF Coil	2.6Ω	.1Ω	20W4918		
L7	Broadcast Osc. Coil	.2Ω	3.1Ω	20V4621A		
L8	S.W. 1 Osc. Coil	.4Ω	1Ω	20W4919		Tap @ .2Ω
L9	S.W. 2 Osc. Coil	.2Ω	.3Ω	20W4920		Tap @ .1Ω
L10	1st. IF Trans.	14Ω	14Ω	20V4622A		
L11	2nd. IF Trans.	14Ω	14Ω	20V4622A		
L12	3rd. IF Trans.	14Ω	14Ω	20V4622A		

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C41	.02	200	15U4580	P488-02	DF-203	PJ2S2		2TM-S2	Tone Comp.
C42	1500		15L3459	SI1500	D6-152	TM5D15	GP2L-152	5HK-D15	2nd. AF Amp. Plate
C43	.05	600	15L3467	P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C44	.05	400	15L3466	P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C45	.05	600	15L3467	P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C46	.05	600	15L3467	P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling

* Not Used In All Models

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SCOTT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	70V4583	Q13-133	AG-60-Z	B-60	Volume Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R1A per instructions
R2A	500KΩ	½	70V4585	Q13-133	AG-60-Z	B-60-S	Bass Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R2A per instructions
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach to R2A per instructions
R3A	500KΩ	½	70V4584	Q11-133	AG-58-S	B-59	Treble Control
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Attach to R3A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SCOTT PART No.	IRC PART No.	
R4	470KΩ	½	70L3404		RF Amp. Grid
R5	100KΩ	½	70L3401	BTS-100K	AVC Network
R6	82Ω	½	70L3391	BTS-82	RF Amp. Cathode
R7	1000Ω	½	70L3393	BTS-1000	RF Amp. Decoupling
R8	2.2Meg	½	70L3408		Mixer Grid
R9	4700Ω	½	70L3395	BTS-4700	Mixer Cathode
R10	100KΩ	½	70L3401	BTS-100K	AVC Network
R11	1000Ω	½	70L3393	BTS-1000	Mixer Plate Decoupling
R12	33KΩ	½	70L3398		Osc. Grid
R13	1000Ω	½	70L3393	BTS-1000	Osc. Plate
R14	100KΩ	½	70L3401	BTS-100K	AVC Network
R15	220Ω	½	70V4783	BTS-220	1st. Sound IF Amp. Cathode
R16	1000Ω	½	70L3393	BTS-1000	1st. Sound IF Amp. Decoupling
R17	220Ω	½	70V4783	BTS-220	2nd. Sound IF Amp. Cathode
R18	3300Ω	½	70L3394	BTS-3300	2nd. Sound IF Amp. Decoupling
R19	6800Ω	½	70L3534	BTS-6800	Phono Input Shunt
R20	3.3Meg	½	70L3422	BTS-3.3Meg	Pre Amp. Grid - See Note 1
R21	3.3Meg	½	70L3422	BTS-3.3Meg	Pre Amp. Grid
R22	68KΩ	½	70L3515	BTS-68K	Pre Amp. Plate
R23	33KΩ	½	70L3398	BTS-33K	Pre Amp. Plate
R24	220KΩ	½	70L3403	BTS-220K	Tone Compensation
R25	22KΩ	½	70L3397	BTS-22K	Tone Compensation
R26	220KΩ	½	70L3403	BTS-220K	Diode Det. Load
R27	47KΩ	½	70L3399	BTS-47K	Diode Filter
R28	22KΩ	½	70L3397	BTS-22K	Diode Filter
R29	1Meg	½	70L3406	BTS-1Meg	AVC Network
R30	68KΩ	½	70L3515	BTS-68K	Decoupling
R31	4.7Meg	½	70L3530	BTS-4.7Meg	1st. AF Amp. Grid
R32	100KΩ	½	70L3401	BTS-100K	1st. AF Amp. Plate
R33	47KΩ	½	70L3399	BTS-47K	Tone Compensation
R34	22KΩ	½	70L3397	BTS-22K	Tone Compensation
R35	100KΩ	½	70L3401	BTS-100K	2nd. AF Amp. Grid
R36	56Ω	½	70V4628		2nd. AF Amp. Cathode
R37	2200Ω	½	70L3432	BTS-2200	2nd. AF Amp. Cathode
R38	47KΩ	½	70L3399	BTS-47K	2nd. AF Amp. Plate
R39	560Ω	½	70L3527	BTS-560	Feedback Network
R40	390KΩ	½		BTS-390K	Cathode Follower Grid - See Note 2
R41	10KΩ	½	70L3396	BTS-10K	Cathode Follower Cathode
R42	1800Ω	½	70V4700	BTS-1800	Cathode Follower Cathode
R43	1000Ω	½	70L3393	BTS-1000	Decoupling
R44	750Ω	5	70W4912	1 3/4A-750	Filter - Wire Wound
R45	220KΩ	½	70L3403	BTS-220K	3rd. AF Amp. Grid
R46	680Ω	½	70V4691	BTS-680	3rd. AF Amp. Cathode
R47	10KΩ	1	70L3427	BTA-10K	3rd. AF Amp. Cathode

FUSES

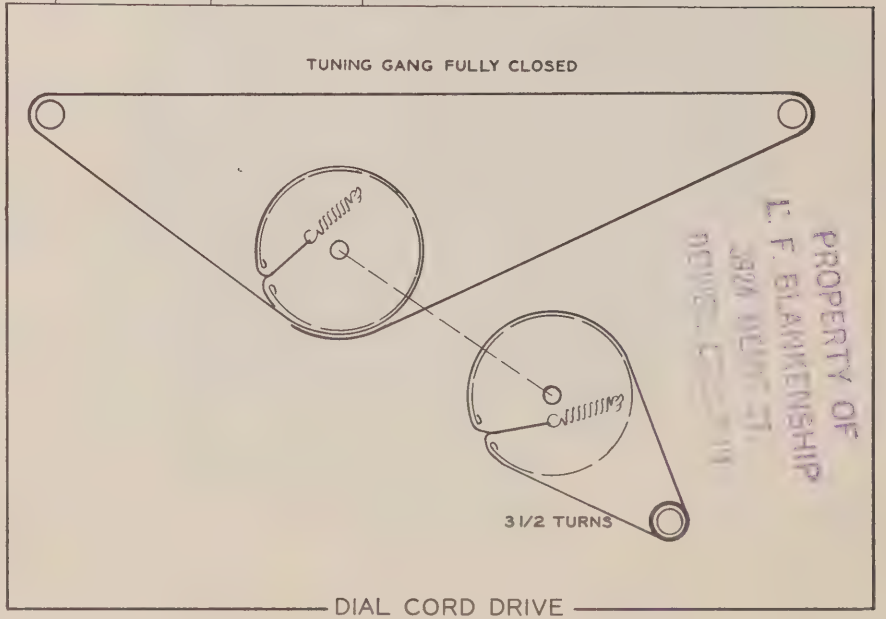
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			SCOTT PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	3A 250V	37A162		312003	342001	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SCOTT PART No.		
M2	Bayonet	6-8	.15	Brown	49A168		Type No. #47
M3	Bayonet	6-8	.15	Brown	49A168		Type No. #47
M4	Bayonet	6-8	115	Brown	49A168		Type No. #47 (Phono Compartment)

MISCELLANEOUS

ITEM No.	PART NAME	SCOTT PART No.	NOTES
M5	Switch	89W4899	Function Selector
M6	3 Gang Var. Cap.	15W4895	(12-512MMF) Each AM Section
A8	Trimmer	15E2675	Osc. Padder (30-200MMF)
	Knob	47V4603	Main Tuning
	Knob	47V4604	Control



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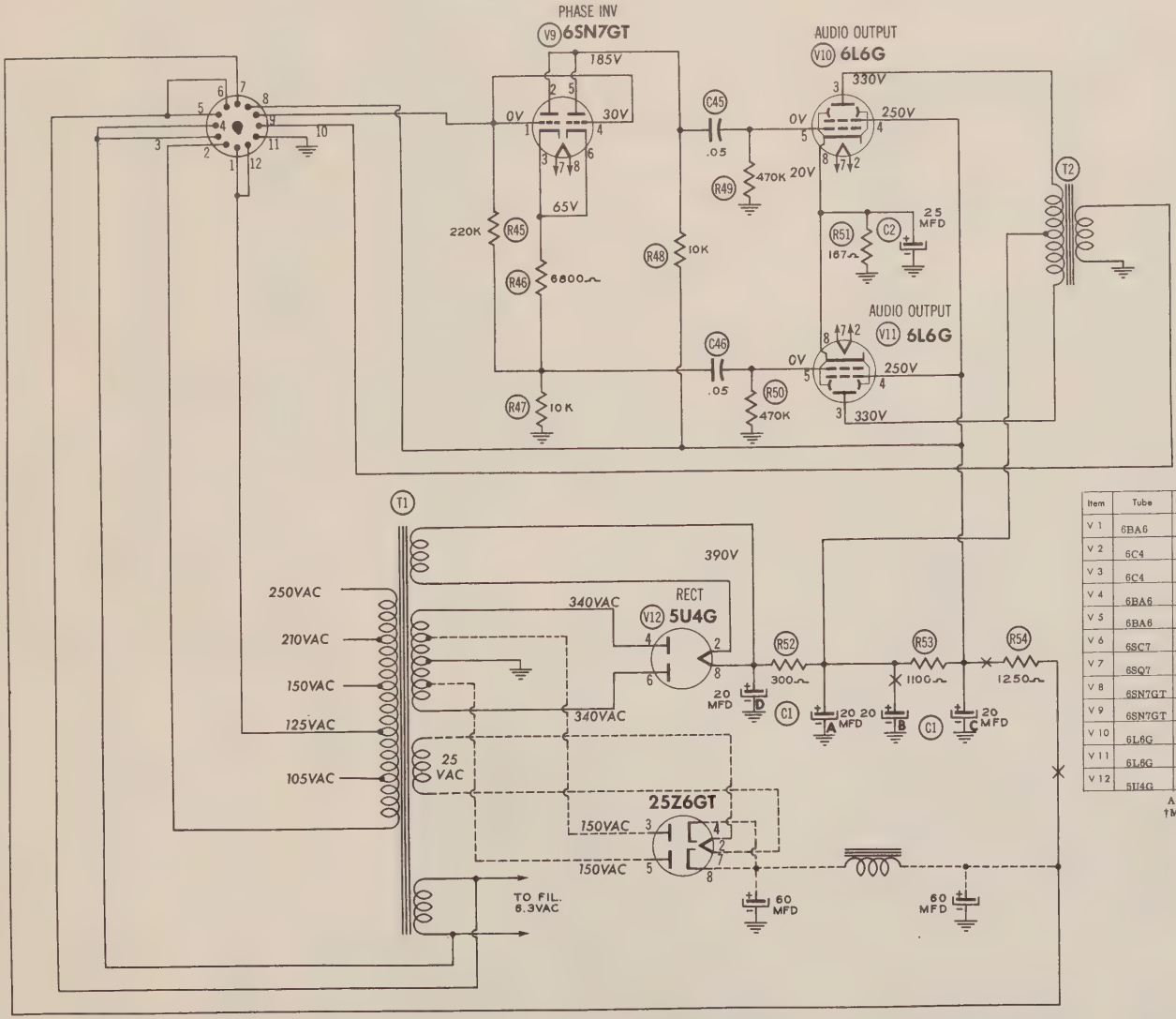

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	1.8Meg	0Ω	.1Ω	0Ω	†4.4KΩ	†4.4KΩ	82Ω	
V 2	6C4	†4.4KΩ	INF	.1Ω	0Ω	†4.4KΩ	3.6Meg	4.7KΩ	
V 3	6C4	†4.4KΩ	INF	.1Ω	0Ω	†4.4KΩ	33KΩ	0Ω	
V 4	6BA6	1.4Meg	0Ω	.1Ω	0Ω	†4.4KΩ	†4.4KΩ	220Ω	
V 5	6BA6	14Ω	0Ω	.1Ω	0Ω	†6.7KΩ	†6.7KΩ	220Ω	
V 6	6SC7	0Ω	†100KΩ	3.3Meg	6.8KΩ	†140KΩ	0Ω	0Ω	.1Ω
V 7	6SQ7	0Ω	4.7Meg	0Ω	220KΩ	220KΩ	†100KΩ	.1Ω	0Ω
V 8	6SN7GT	20KΩ	†49KΩ	2.2KΩ	400KΩ	†2.4KΩ	12KΩ	.1Ω	0Ω
V 9	6SN7GT	250KΩ	†11KΩ	10KΩ	250KΩ	†11KΩ	10KΩ	0Ω	.1Ω
V 10	6L6G	0Ω	.1Ω	†375Ω	†1.4KΩ	470KΩ	10KΩ	0Ω	167Ω
V 11	6L6G	0Ω	.1Ω	†375Ω	†1.4KΩ	470KΩ	10KΩ	0Ω	167Ω
V 12	5U4G	INF	50KΩ	INF	34Ω	INF	36Ω	INF	50KΩ

ALL MEASUREMENTS TAKEN IN BROADCAST BAND (#1 POSITION)
†MEASURED FROM PIN 8 OF V12.

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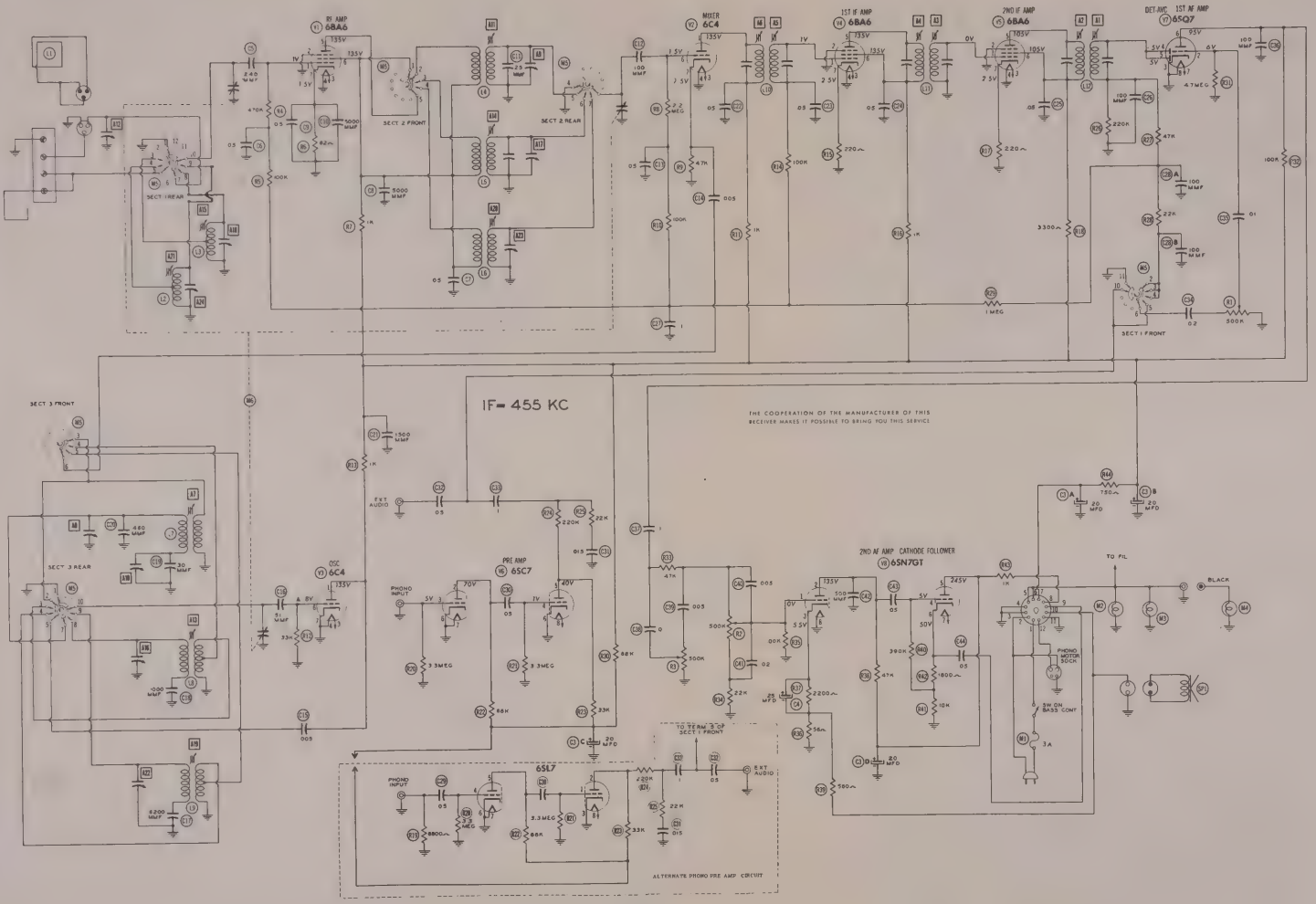
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



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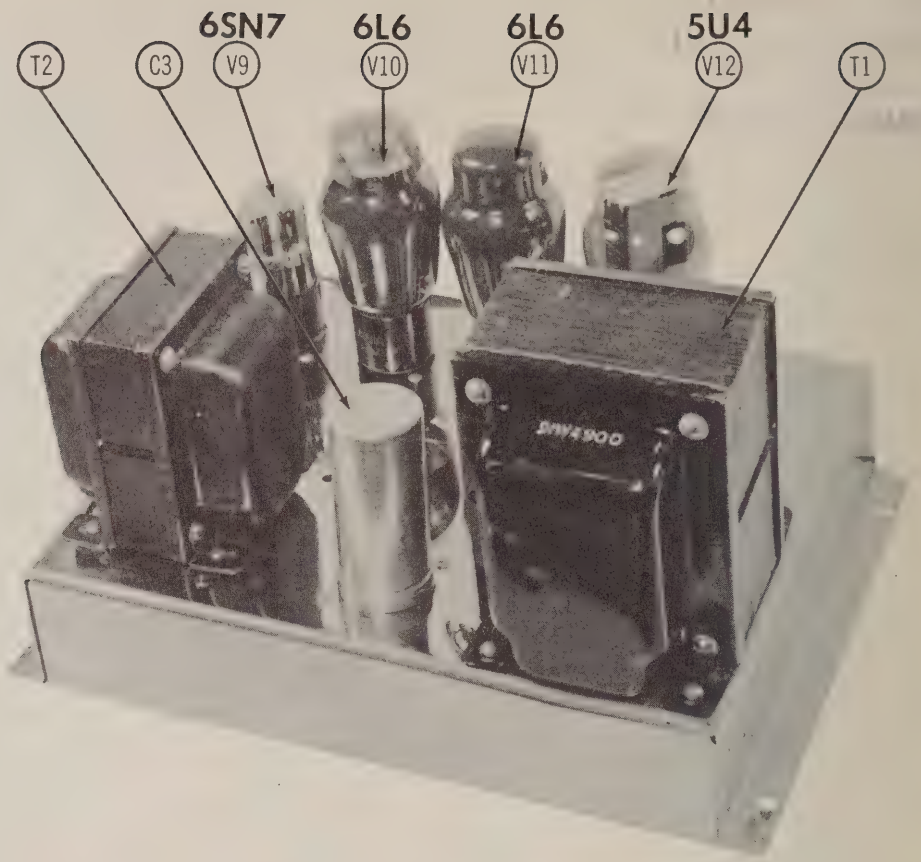
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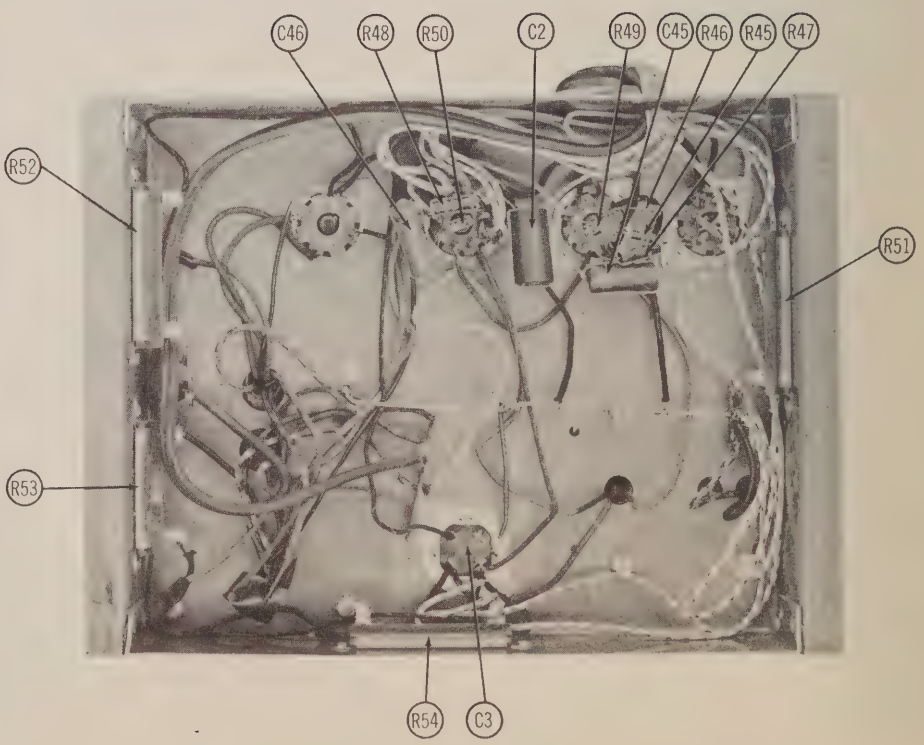
6L6
6L6
5U4
T2
C3
V9
V10
V11
V12
T1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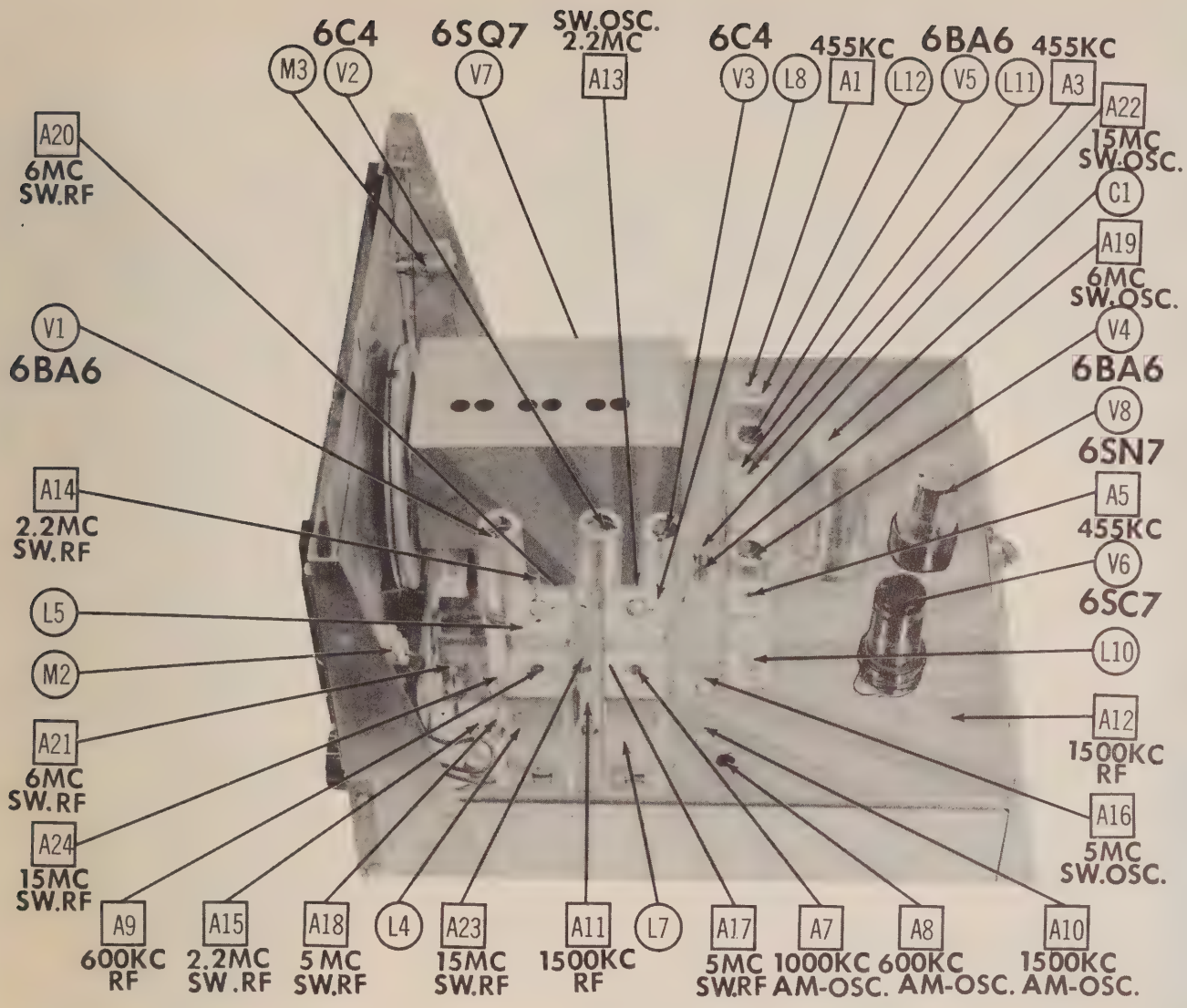
R53
R54
C3



ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set pointer to zero on reference, (top) scale. Disconnect the speaker voice coil and connect an 8 Ω, 10 watt, resistor across the output transformer secondary in its place. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to stator on center section of tuning gang. Low side to chassis.	455KC (400∿ Mod.)	1	1600KC	Across output transformer secondary	A1, A2 A3, A4 A5, A6	Adjust for maximum output.
2.	"	High side to ant. terminal 1. Low side to chassis.	1000KC	"	1000KC	"	A7	"
3.	"	"	600KC	"	600KC	"	A8, A9	"
4.	"	"	1500KC	"	1500KC	"	A10, A11 A12	Adjust for maximum output. Repeat steps 2, 3 & 4 until no further improvement can be made.
5.	100Ω resistor in series with 125 MMF cap.	High side thru dummy to ant. term 2. Low side to chassis.	2.2MC	2	2.2MC	"	A13, A14, A15	Adjust in order given for max. output.
6.	"	"	5MC	"	5MC	"	A16, A17, A18	Adjust in order given for max. output. Repeat steps 5 & 6 until no further improvement can be made.
7.	"	"	6MC	3	6MC	"	A19, A20 A21	Adjust in order given for max. output.
8.	"	"	15MC	"	15MC	"	A22, A23, A24	Adjust in order given for max. output. Repeat steps 7 & 8 until no further improvement can be made.

PHOTOFACT* Folder

*TRADE MARK

RTMA MEMBER RADIO-TELEVISION MANUFACTURERS ASSOCIATION

SILVERTONE MODELS
1176-21, 1186-21 (Ch. 100.208)

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MODEL 1176-21

SILVERTONE MODELS
1176-21, 1186-21 (Ch. 100.208)

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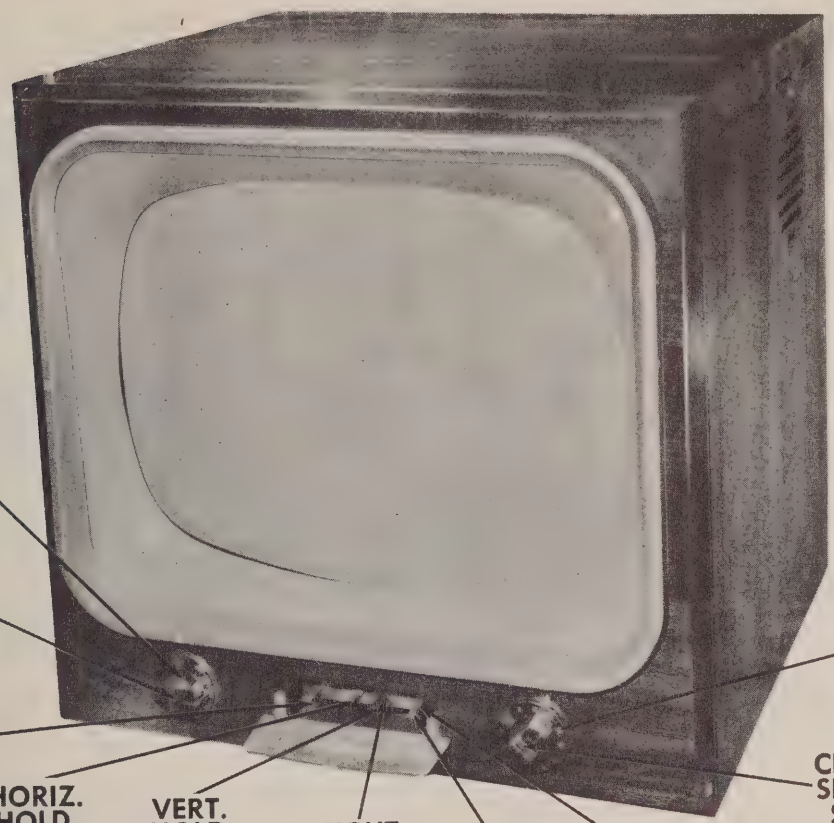
DATE 4-52 SET 165 FOLDER 12

SILVERTONE MODELS 1176-21, 1186-21 (Ch. 100.208)



SILVERTONE MODELS
1176-21, 1186-21 (Ch. 100.208)

SILVERTONE MODEL 1176-21

TRADE NAME	Silvertone Models 1176-21, 1186-21, (Ch. 100.208).
SUPPLIER	Sears Roebuck & Co., 925 So. Homan, Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Nineteen
POWER SUPPLY	110-120 Volts AC-60 cycle
RATING	1.7 Amp. @ 117 Volts AC.
TUNING RANGE-	Channel 2 thru 13

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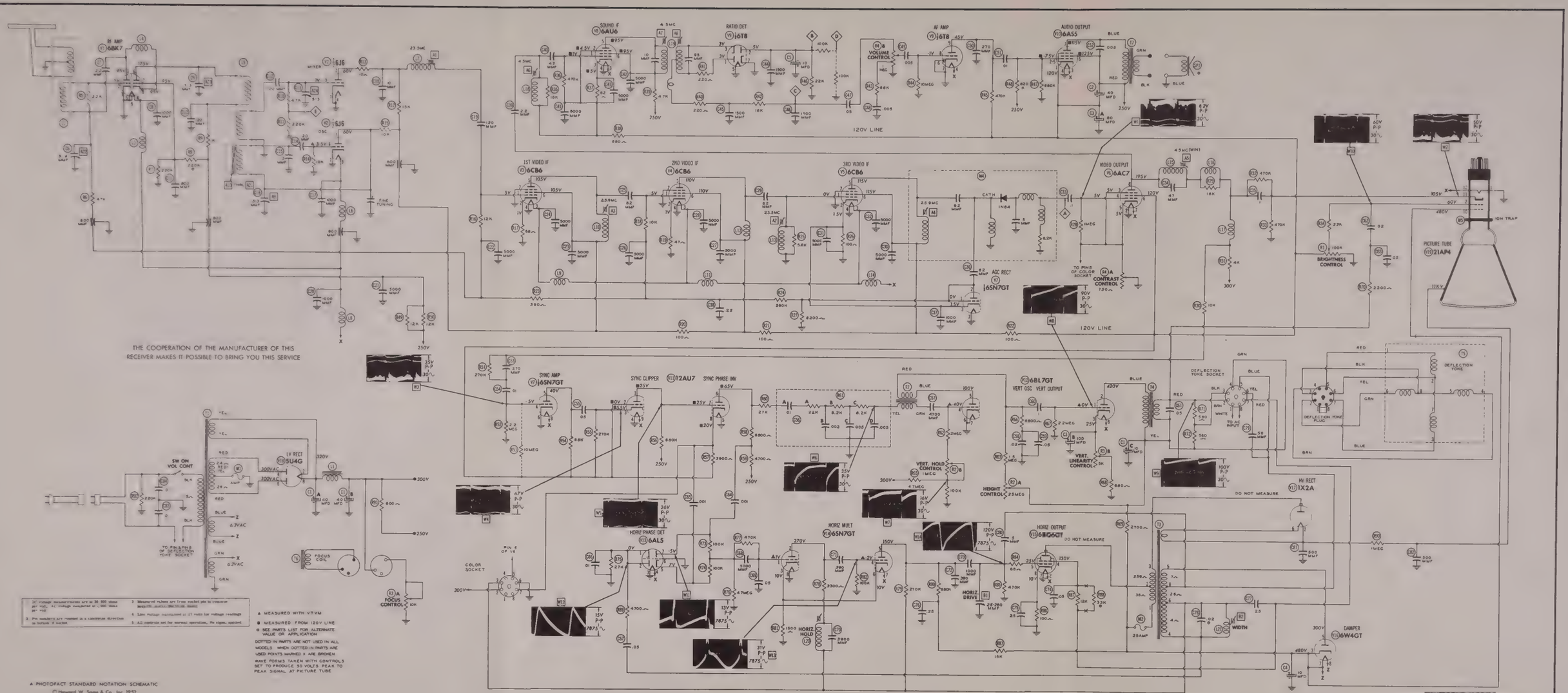
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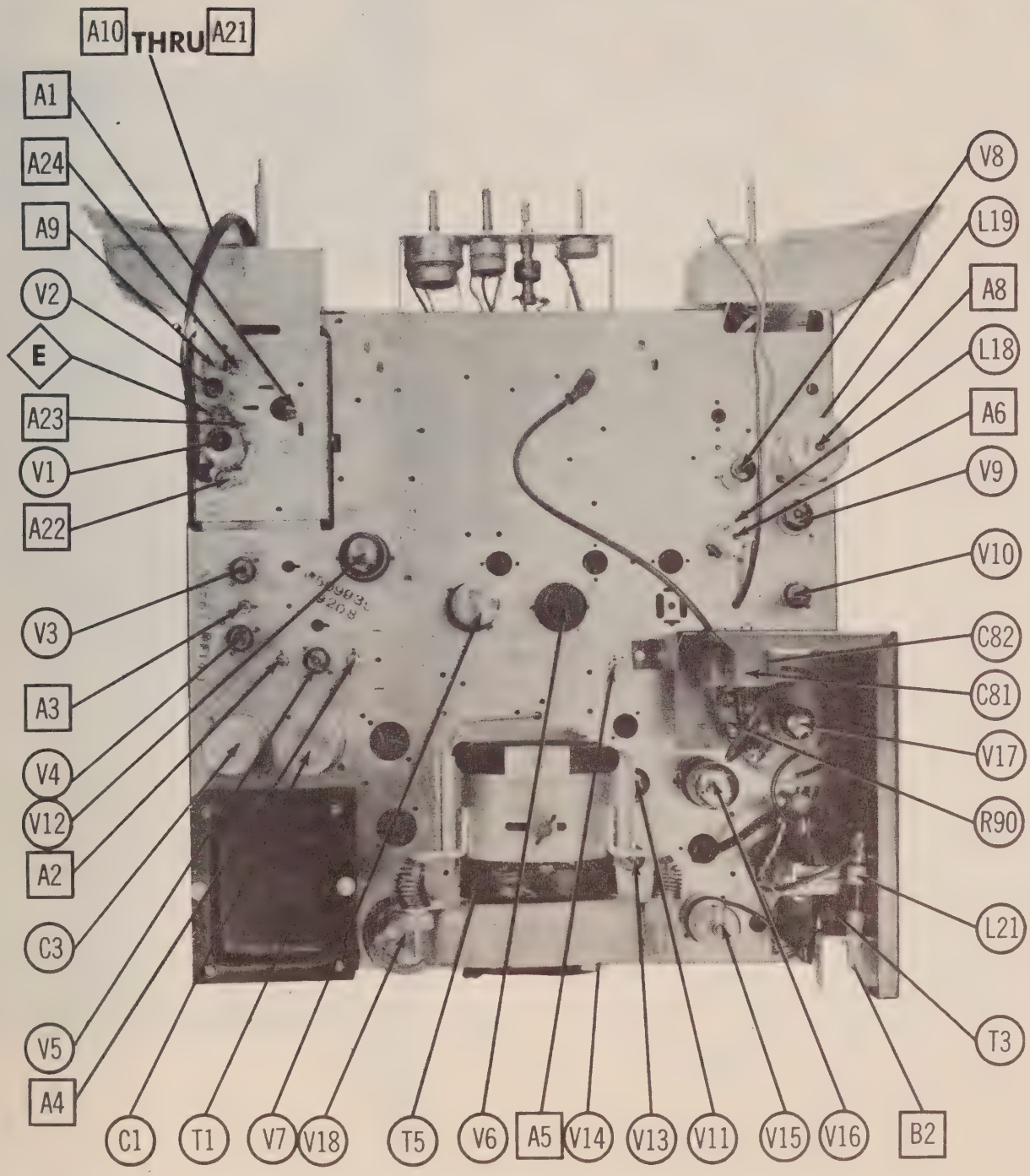
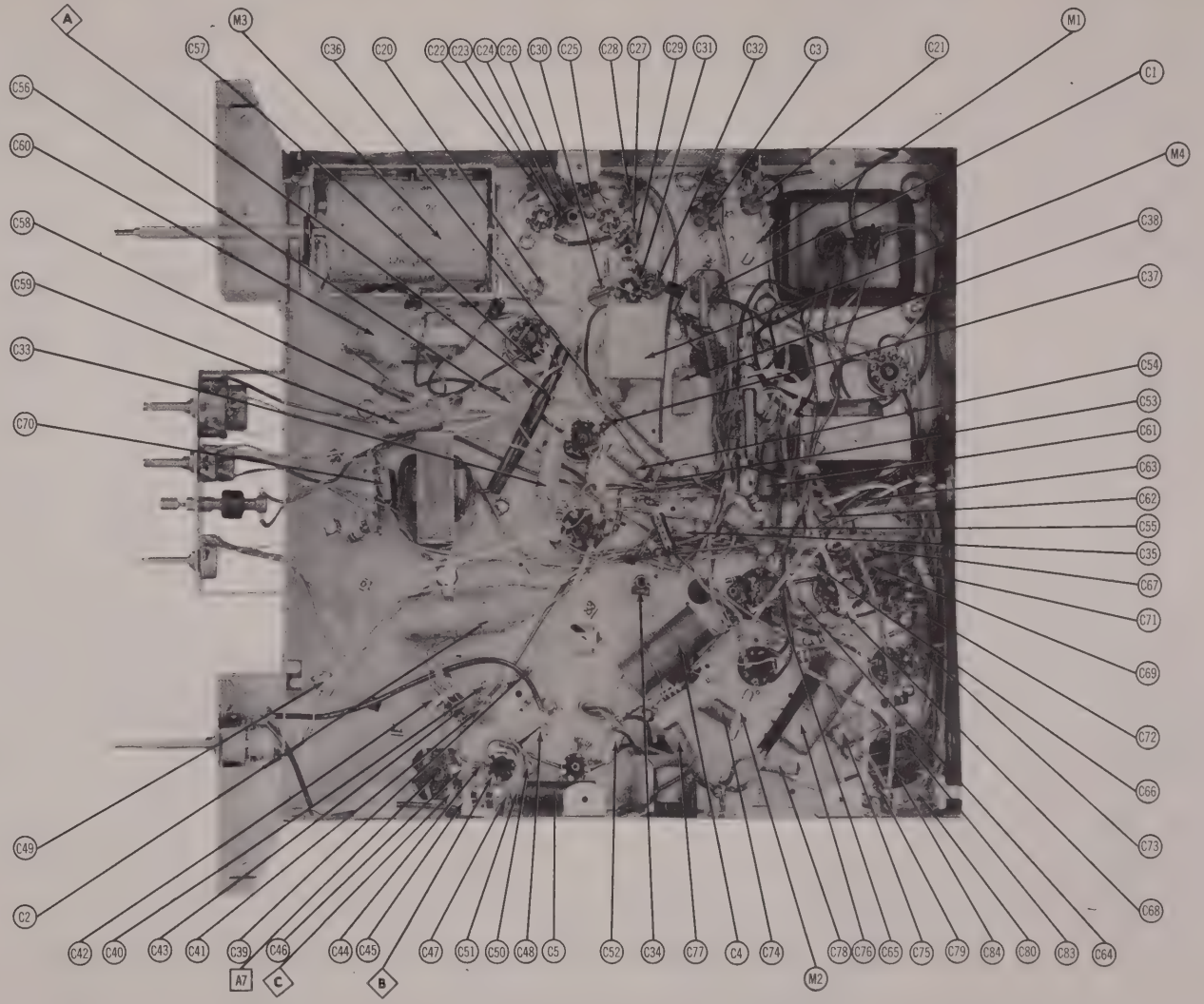


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

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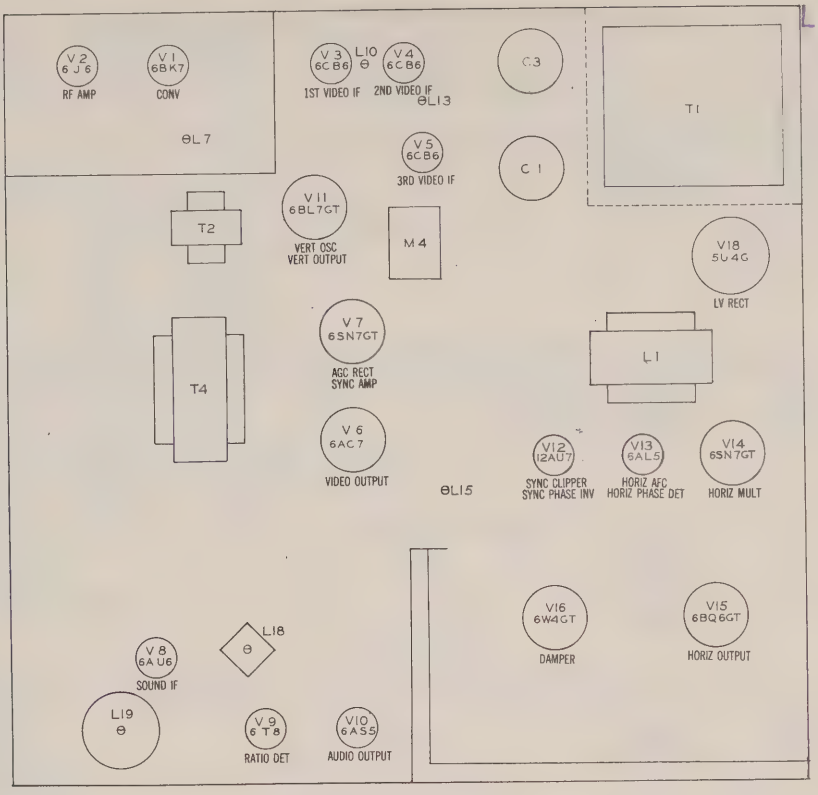
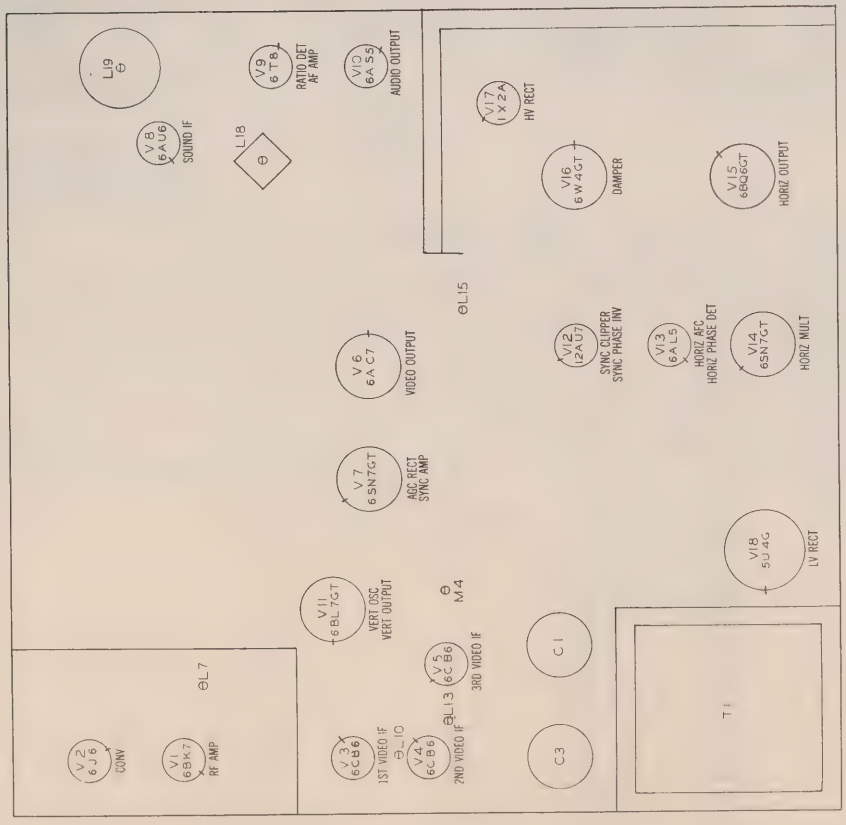


BOTTOM VIEW



TOP VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2) from its socket and replace it with a 6J6 which has Pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C35, connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	23.5MC (unmod.)	Any	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	25.9MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25MC (10MC swp.)	22.25MC 26.75MC	Any	Vert. amp. thru 47KΩ to Point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A4 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (unmod.)	Any	DC probe thru detector (Fig. 2) to cathode of picture tube. Common to chassis.	A5	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from Point (B) to chassis. The junction of these two resistors is alignment Point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point (B). Common to chassis.	A6, A7	Adjust for maximum deflection.
6.	"	"	"	"	DC probe to Point (C). Common to Point (D).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (450KC swp)	4.5MC	Any	Vert. amp. to Point (B). Low side to chassis.	A6, A7	Disconnect stabilizor capacitor C5. Adjust for maximum amplitude & symmetry as per Fig. 3.
6.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A8	Reconnect capacitor C5. Adjust A8 so 4.5MC occurs at center of crossover lines a as per Fig. 4. SLIGHTLY retouch A7 for maximum amplitude & straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A9. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A9 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency.
The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC swp.)	211.25MC 215.75MC	13	Vert. amp. thru 47KΩ to Point (A). Low side to chassis.	A10	Adjust to place sound marker as shown in Fig. 5. The video marker should be at 50%.
			207MC (10MC swp.)	205.25MC 209.75MC	12		A11	
			201MC (10MC swp.)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp.)	193.25MC 197.75MC	10		A13	
			189MC (10MC swp.)	187.25MC 191.75MC	9		A14	
			183MC (10MC swp.)	181.25MC 185.75MC	8		A15	
			177MC (10MC swp.)	175.25MC 179.75MC	7		A16	
			85MC (10MC swp.)	83.25MC 87.75MC	6		A17	
			79MC (10MC swp.)	77.25MC 81.75MC	5		A18	
			69MC (10MC swp.)	67.25MC 71.75MC	4		A19	
			63MC (10MC swp.)	61.25MC 65.75MC	3		A20	
			57MC (10MC swp.)	55.25MC 59.75MC	2		A21	

ALIGNMENT INSTRUCTIONS (CONT.)

RF & MIXER ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC swp.)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point E Low side to chassis.	A22, A23 A24	Adjust for response curve similar to Fig. 6 with markers above 90%.
9.	"	"	213MC (10MC swp.)	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 6. If markers fall below 70% on any channel, make slight compromise adjustment of A22, A23 & A24 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
			177MC (10MC swp.)	175.25MC 179.75MC	7			
			85MC (10MC swp.)	83.25MC 87.75MC	6			
			79MC (10MC swp.)	77.25MC 81.75MC	5			
			69MC (10MC swp.)	67.25MC 71.75MC	4			
			63MC (10MC swp.)	61.25MC 65.75MC	3			
			57MC (10MC swp.)	55.25MC 59.75MC	2			

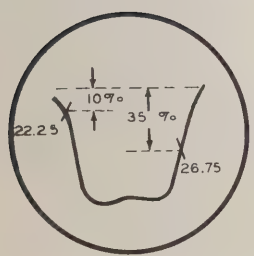


FIG.1

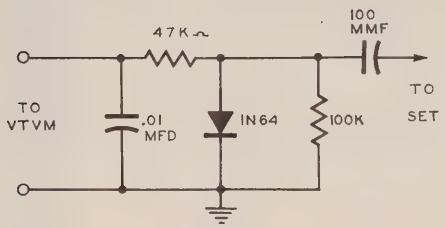


FIG. 2

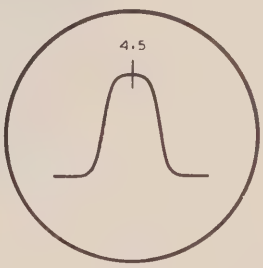


FIG. 3

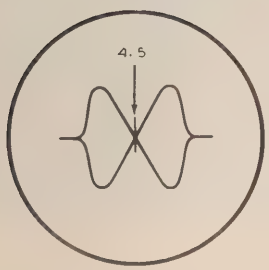


FIG. 4

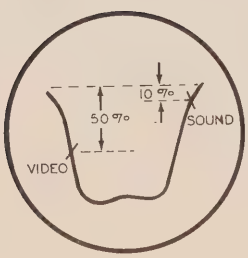


FIG.5

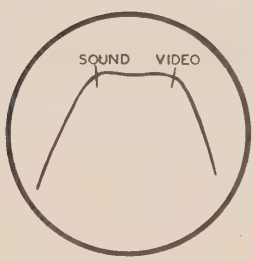
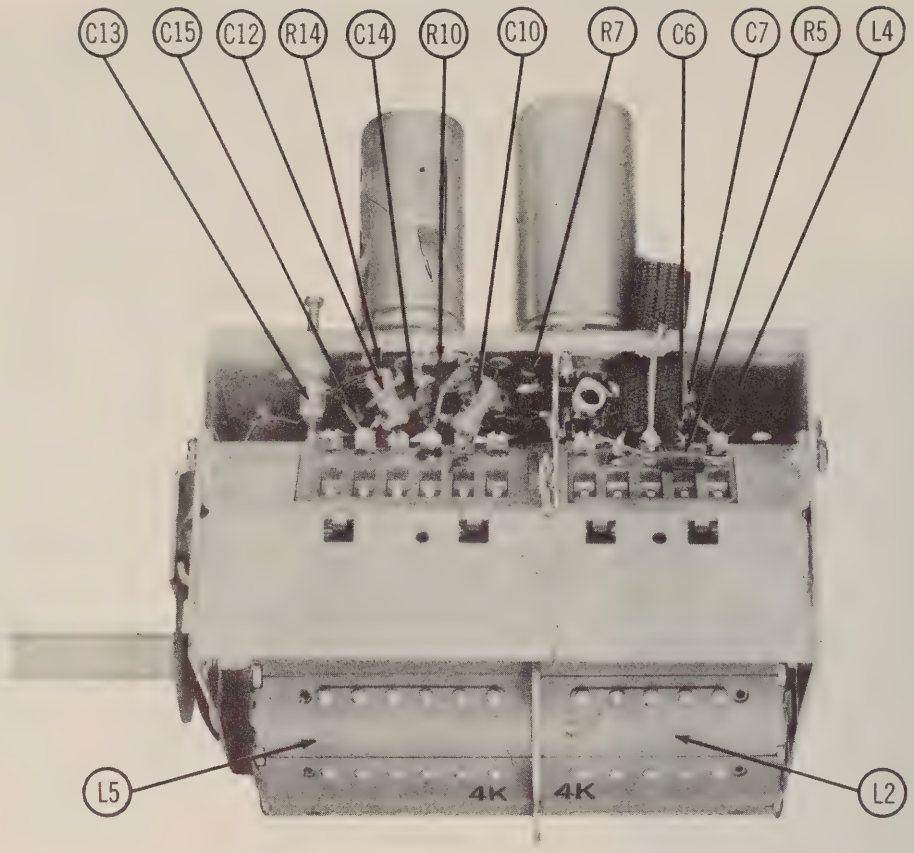


FIG.6

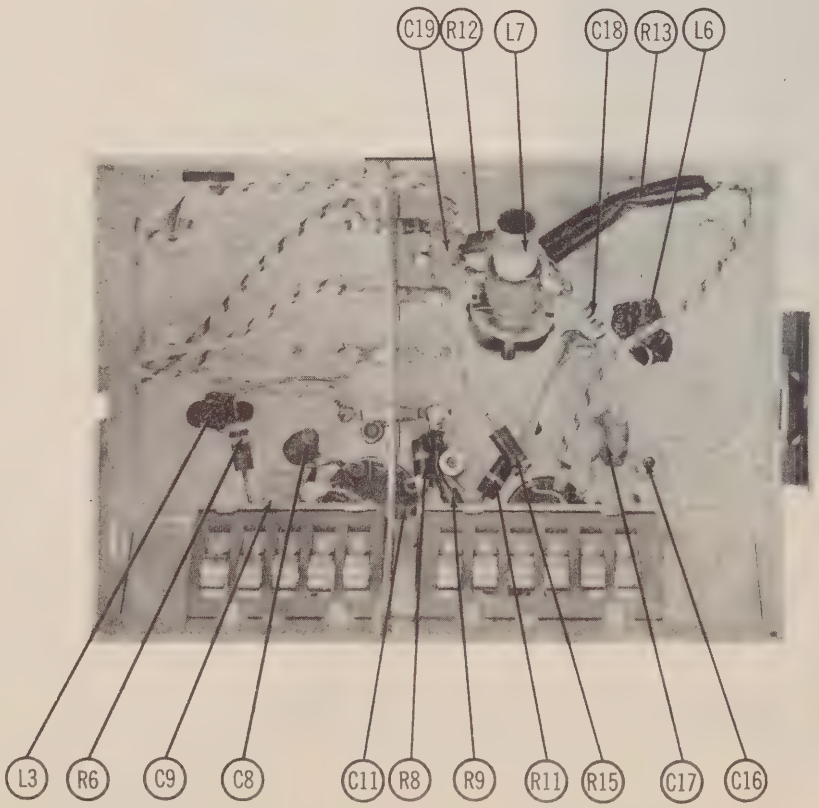
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BK7	INF	615KΩ	0Ω	.1Ω	0Ω	†7.6KΩ	110KΩ	INF	0Ω
V 2	6J6	■10KΩ	■15KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	580KΩ	68Ω	.1Ω	0Ω	■300Ω	■300Ω	0Ω		
V 4	6CB6	578KΩ	47Ω	.1Ω	0Ω	■200Ω	■200Ω	0Ω		
V 5	6CB6	.2Ω	100Ω	.1Ω	0Ω	■100Ω	■100Ω	0Ω		
V 6	6AC7	0Ω	0Ω	260Ω	1Meg	260Ω	■0Ω	.1Ω	†4KΩ	
V 7	6SN7GT	8.2KΩ	8.2KΩ	100Ω	2.2Meg	■68KΩ	0Ω	0Ω	.1Ω	
V 8	6AU6	■470KΩ	■680Ω	.1Ω	0Ω	†5.4KΩ	†5.4KΩ	■760Ω		
V 9	6T8	INF	22KΩ	INF	.1Ω	0Ω	0Ω	0Ω	10Meg	■470KΩ
V 10	6AS5	40KΩ	380KΩ	.1Ω	0Ω	380KΩ	†670Ω	†1.1KΩ		
V 11	12AU7	†680KΩ	■0Ω	■270KΩ	0Ω	0Ω	†12KΩ	†680KΩ	■3.9KΩ	.1Ω
V 12	6BL7GT	2.2Meg	#3.5KΩ	1.5KΩ	2.7Meg	#2.1Meg	0Ω	0Ω	.1Ω	
V 13	6AL5	27KΩ	27KΩ	0Ω	.1Ω	4.8Meg	0Ω	4.8Meg		
V 14	6SN7GT	5.1Meg	†3.3KΩ	1.5KΩ	100KΩ	†250KΩ	1.5KΩ	.1Ω	0Ω	
V 15	6BQ6GT	INF	.1Ω	INF	†9KΩ	470KΩ	470KΩ	0Ω	100Ω	TOP CAP #36Ω
V 16	6W4GT	INF	INF	130KΩ	INF	†75Ω	#0Ω	#0Ω	#.1Ω	
V 17	1X2A	PINS 1 THROUGH 9 HAVE INF RESISTANCE								Top Cap. #330Ω
V 18	5U4G	#0Ω	15KΩ	INF	24Ω	0Ω	26Ω	INF	15KΩ	
V 19	2IAP4	0Ω	45KΩ	PIN 10 #0Ω	PIN 11 240KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V18
# MEASURED FROM PIN 3 OF V16
■ MEASURED FROM 120VDC LINE



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

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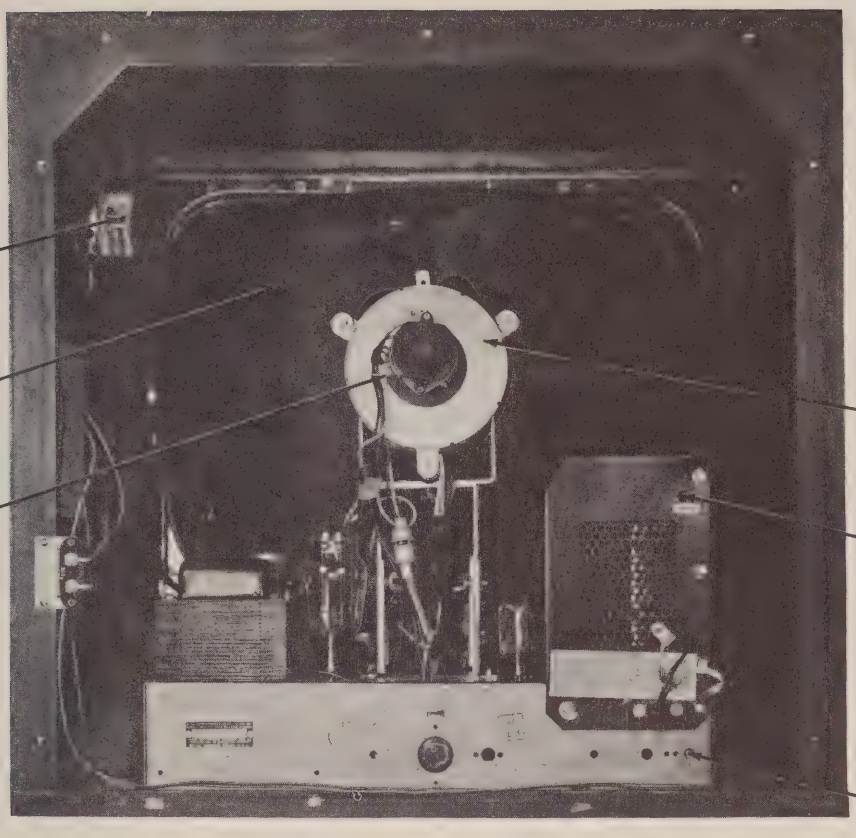

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal hold adjustment until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer, (B1), counter-clockwise as far as possible without crowding or vertical lines appearing in the picture.

Adjust the width slug, (B2), until the picture is slightly wider than necessary to fill the mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 7 wood screws and remove rear cover.
3. Disconnect built in antenna.
4. Remove 2 wood screws and remove antenna bracket.
5. Disconnect and remove 2 nuts holding speaker. Remove speaker.
6. Remove 5 chassis bolts. Remove chassis.

NOTE: For picture tube remove it is necessary to remove chassis as outlined above.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BK7	6BK7		
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6AC7	6AC7	8N	
V7	AGC Rect.- Sync. Amplifier	6SN7GT	6SN7GT	8BD	
V8	Sound IF Amp.	6AU6	6AU6	6BK	
V9	Ratio Detector-AF Amplifier	6T8	6T8	9E	
V10	Audio Output	6A85	6A85	7CV	
V11	Sync. Clipper-Sync. Phase Inv.	12AU7	12AU7	9A	
V12	Vert. Osc.-Vert. Output	6BL7GT	6BL7GT	8BD	
V13	Horiz. AFC Phase Detector	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6W4GT	6W4GT	4CG	
V17	HV Rectifier	1X2A	1X2A	9T	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V19	21AP4		12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	WS09001	AFH3-43		UPT44145		TVL-3785	▲ Filter
B	40	450							● Filter
C	10	450							▲ Vert. Output Dec.
C2	40	300	W160095	PR8450/40		BR4035		TVL-1611	Decoupling
C3A	80	250	WS09002	AFH3-182		UPT10025-1		TVL-3722	● Decoupling
B	100	50				V15			▲ Vert. Output Cathode Decoupling
C4	10	600	WS08480	PR8600/10		BRHV61J			Stabilizing Cap.
C5	10	150	WS05174	PR8150/12		BR1015		TVA-1408	Variable Trimmer
C6	3-9		WS09084		829-10				Neutralizing Cap.
C7	2.2		WS13001		TCZ-2.2		NP0K-2R2		RF Amp. Fil. Bypass
C8	1000		WS13009	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	Variable Trimmer
C9	.5-3		WS07958		829-3				Variable Trimmer
C10	120		WS13439	SI120	D6-121	TM5T12	GP2K-121	5GA-T12	RF Amp. Plate Dec.
C11	800			BPD-0008	DD-801	TM5T8	801-001	5HK-D1	RF Amp. Grid Dec.
C12	100		WS13440	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	RF Coupling
C13	5-3		WS07958		829-3				Variable Trimmer
C14	20		WS13441	SI20NP0	TCZ-20		NP0K-200		Osc. Grid Cap.
C15	10		WS13446	SI10N750	TCN-10		N750K-100	5TCU-Q1	Fixed Trimmer
C16	5-3		WS09081		829-3				Variable Trimmer
C17	1000		WS13009	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	Conv. Fil. Bypass
C18	20		WS13444	SI20NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C19	120		WS13439	SI120	D6-121	TM5T12	GP2K-121	5GA-T12	IF Coupling
C20	1000		WS13009	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	Fil. Bypass
C21	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	RF Bypass
C22	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	AGC Filter
C23	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	1st Video IF Dec.
C24	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	1st Video IF Fil.
C25	82		WS13018	SI82			GP1K-820		IF Coupling
C26	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	AGC Filter
C27	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd Video IF Dec.
C28	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	2nd Video IF Fil.
C29	82		WS13018	SI82			GP1K-820		IF Coupling
C30	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	3rd Video IF Dec.
C31	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	3rd Video IF Cathode
C32	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	3rd Video IF Fil.
C33	.1	200	WS13033	PZ8S-1	DF-104	PT2P1		2TM-P1	Video Coupling
C34	.47		WS13430	S147NP0	TCZ-47		NP0K-470	5TCC-Q47	Fixed Trimmer
C35	.1	400	WS13035	P486-1	DF-104	PTK4P1		4TM-P1	Video Coupling
C36	82		WS13016	SI82			GP1K-820		IF Coupling
C37	1000		WS13009	SI1000	D6-102	TM5D1	GP2L-102	5HK-D1	AGC Rect. Cathode
C38	.25	200	WS13045	P488-25		PJ2P25		2TM-P25	AGC Filter
C39	2.2		WS13001		TCZ-2.2		NP0K-2R2		Sound IF Coupling
C40	47		WS13002	SI47	D6-470	TM5Q5	GP1K-470	5GA-Q47	Sound IF Coupling
C41	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Sound IF Grid Dec.
C42	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Sound IF Cathode
C43	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Diode Load Cap.
C44	1500		WS13010	SI1500	D6-152	TM5D15	GP2L-152	5HK-D15	RF Bypass
C45	1500		WS13010	SI1500	D6-152	TM5D15	GP2L-152	5HK-D15	De-emphasis
C46	1500		WS13010	SI1500	D6-152	TM5D15	GP2L-152	5HK-D15	Audio Coupling
C47	.05	200	WS13027	P288-05	DF-503	PJ2S5		2TM-S5	Tone Comp.
C48	.005	600	WS12007	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C49	.005	600	WS12007	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	AF Amp. Plate Bypass
C50	270		WS13008	SI270	D6-271		GP2K-271	5GA-T27	
C51	.01	400	WS13011	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C52	.005	600	WS12007	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Output Plate
C53	270		WS13008	SI270	D6-271		GP2K-271	5GA-T27	Sync. Coupling
C54	.01	600	WS13013	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Sync. Coupling
C55	.05	400	WS13039	P486-05	DF-503	PTE4S5		4TM-S5	Sync. Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56A	.01			P688-01		PTE6S1	GP2-333-103 †		Vert. Sync. Coupling
B	.002		‡WS08082	P688-002	PC-100 †	PTE6S2	GP2-333-202 †	(10IC1 ‡	Vert. Integrator Net.
C	.005			P688-005	DD-103	PTE6D5	GP2-333-502 †	5HK-S1	Vert. Integrator Net.
D	.005			P688-005		PTE6D5	GP2-333-502 †		Vert. Integrator Net.
C57	4700	1000	WS12533						Vert. Osc. Grid Cap.
C58	.02	600	WS12019	P688-02	DF-203	PTE6S2		6TM-S2	Vert. Discharge
C59	.05	600	WS12308	P688-05	DF-503	PTE6S5		6TM-S5	Vert. Discharge
C60	.1	600	WS13037	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C61	.05	200	WS12027	P288-05	DF-503	PJ2S5		2TM-S5	Fixed Trimmer
C62	.02	600	WS12019	P688-02	DF-203	PTE6S2		6TM-S2	Vert. Sweep Coupling
C63	.05	600	WS12031	P688-05	DF-503	PTE6S5		6TM-S5	Integrator Net.
C64	.001	600	WS13001	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Sync. Coupling
C65	.001	600	WS12001	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Sync. Coupling
C66	.01	200	WS12009	P488-01	D6-103	PJ2S1	GP2-333-103	2TM-S1	Voltage Divider
C67	.05	600	WS12031	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Feedback
C68	5000		WS13013	BPD-005	DD-502	TM5D5	811-005	5HK-D5	Horiz. AFC Coupling
C69	.05	400	WS12027	P488-05	DF-503	PTE4S5		4TM-S5	Horiz. AFC Filter
C70	3900	500	WS12540	1464-004		1DR5D4			Fixed Trimmer
C71	390	500	WS12535	1469-0004		5R5T4		MS-34	Horiz. MV Feedback
C72	390	500	WS12535	1469-0004		5R5T4		MS-34	Horiz. Discharge
C73	1000	500	WS12515	[illegible]	D6-102	1W5D1	GP2L-102	1FM-21	Horiz. Sweep Coupling
C74	.05	600	WS12031	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Output Screen
C75	.25	200	WS12045	P488-25		PJ2P25		2TM-P25	Horiz. Output Cathode
C76	.25	600	WS13049	684-25		PTE6P25		6TM-P25	RF Bypass
C77	.25	200	WS13045	P488-25		PJ2P25		2TM-P25	Horiz. Sweep Coupling
C78	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	Fixed Trimmer †
C79	56	1500	WS13027						Fixed Trimmer
C80	5	1500	WS13026						Horiz. Feedback
C81	500	20000	[illegible]	HV20C	TV3-501	MM-C20T5			HV Filter
C82	500	20000	WS08888	HV20C	TV3-501	MM-C20T5			HV Filter
C83	.01	400	WS12355	P488-01		PJ4S1		4TM-S1	Line Filter
C84	.01	400	WS12355	P488-01		PJ4S1		4TM-S1	Line Filter

● Items C56A, C56B, C56C, C56D, R6lA, R6lB, R6lC are combined in one unit.
† Install DD-103 in series with PC-100 input lead to replace mfgr's unit.
‡ Install 10K-S1 in series with 10IC1 input lead to replace mfgr's unit.
¢ Some models use .01 MFD in this application (Part No. WS1203).

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Silvertone PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	100KΩ	½	WS09893	Q11-128	AG-49-S	AN-40	Brightness Control
B	Shaft		Not Req.	Not Req.	RS-2	AK-2	Attach to R1A per instructions.
				("Concentrikit")			
R2A	2.5Meg	½	WS08893	B11-239 *	RTV-313		Height Control - Panel
B	1Meg			B11-137 *			Vert. Hold Control - Rear
C	Shaft End		Not Req.	Q187 *	Not Req.		Attach per instructions in "Concentrikit"
R3A	10KΩ	4	WS09302				Focus Control - Wire Wound - Panel
B	5KΩ	½					Vert. Linearity Control - Rear
R4A	750Ω	2	WS20292				Contrast Control - Wire Wound - Panel
B	1Meg	½					Volume Control & Sw. - Tapped @ 200KΩ Rear

* Additional parts to be used with "Concentrikit"

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R5	22KΩ	½	WS10160		Antenna Coil Shunt
R6	47KΩ 20%	½	WS10167		RF Amp. Grid
R7	220KΩ 20%	½	WS10179		RF Amp. Grid
R8	220KΩ 20%	½	WS10177		Voltage Divider - See note 1.
R9	1000Ω 20%	½	WS10137	BTS-1000	RF Amp. Plate Decoupling
R10	470Ω	½	WS10142	BTS-4700	Mixer Grid
R11	220KΩ 20%	½	WS10179		Mixer Grid
R12	15KΩ 20%	½	WS10158	BTS-15K	Mixer Plate
R13	10Ω 20%	½	WS10181		Parasitic Suppressor
R14	10KΩ	½	WS10154		Osc. Grid
R15	10KΩ	½	WS10154		Osc. Plate
R16	12KΩ 5%	½	WS10723	BTS-12K 5%	1st Video IF Amp. Grid
R17	68Ω 20%	½	WS10116		1st Video IF Amp. Cathode
R18	10KΩ	½	WS10154		2nd Video IF Amp. Grid
R19	47Ω	½	WS10132		2nd Video IF Amp. Cathode
R20	100Ω 20%	½	WS10119	BTS-100	Decoupling
R21	100Ω 20%	½	WS10119	BTS-100	Decoupling
R22	100Ω 20%	½	WS10119	BTS-100	Decoupling
R23	390Ω 20%	½	WS10129	BTS-390	AGC Network
R24	560KΩ	½	WS10186	BTS-560K	AGC Network
R25	560Ω	½	WS10150		3rd Video IF Coil Shunt
R26	100Ω	½	WS10118	BTS-100	3rd Video IF Amp. Cathode
R27	8200Ω	½	WS10153	BTS-8200	AGC Rectifier Load
R28	1MΩ 20%	½	WS10181	BTS-1Meg	Video Amp. Grid
R29	18KΩ 5%	½	WS10745	BTS-18K 5%	Peaking Coil Shunt
R30	10KΩ	½	WS10154	BTS-10K	Isolation
R31	4000Ω	½	WS10753	13/4A-4000	Video Amp. Plate - Wire Wound
R32	470KΩ	½	WS10184	BTS-470K	Picture Tube Cathode
R33	470KΩ	½	WS10184	BTS-470K	Picture Tube Cathode
R34	22KΩ	½	WS10180	BTS-22K	Picture Tube Grid
R35	18KΩ	½	WS10159		Sound IF Coil Shunt
R36	470KΩ	½	WS10184		Sound IF Amp. Grid
R37	82Ω	½	WS10117	BTS-82	Sound IF Amp. Cathode
R38	680Ω 20%	½	WS10134	BTS-680	Decoupling
R39	4700Ω 20%	½	WS10240	BTA-4700	Sound IF Amp. Decoupling
R40	220Ω	½	WS10134		Balancing
R41	220Ω	½	WS10134		Balancing
R42	18KΩ	½	WS10159	BTS-18K	De-emphasis
R43	68KΩ 20%	½	WS10170	BTS-68K	Tone Compensation
R44	10Meg 20%	½	WS10197	BTS-10Meg	AF Amp. Grid
R45	470KΩ	½	WS10184	BTS-470K	AF Amp. Plate
R46	22KΩ	½	WS10180	BTS-22K	Ratio Det. Diode Load
R47	680KΩ 5%	½	WS10746	BTS-680K 5%	Output Grid

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R48	820KΩ 5%	½	WS10747	BTS-820K 5%	Voltage Divider
R49	12KΩ	3	WS10256	BTB-12K	Voltage Dropping
R50	12KΩ	2	WS10356	BTB-12K	Voltage Dropping
R51	270KΩ	½	WS10180	BTS-270K	Isolation
R52	2.2Meg 20%	½	WS10193	BTS-2.2Meg	Sync. Amp. Grid
R53	10Meg	½	WS10197	BTS-10Meg	Sync. Amp. Grid
R54	68KΩ	½	WS10189	BTS-68K	Sync. Amp. Plate
R55	270KΩ	½	W&10180	BTS-270K	Sync. Clipper Cathode
R56	680KΩ	½	WS10187	BTS-680K	Sync. Phase Inverter Grid
R57	3900Ω 5%	½	WS10748	BTS-3900 5%	Sync. Phase Inverter Cathode
R58	6800Ω 20%	½	WS10191	BTS-6800	Sync. Phase Inverter Plate
R59	4700Ω 5%	½	WS10750	BTS-4700 5%	Sync. Phase Inverter Plate
R60	27KΩ	½	WS10182	BTS-27K	Integrator Network
R61A	22KΩ	½		BTS-22K	Integrator Network
B	8200Ω	½	WS08082 ●	BTS-8200	Integrator Network
C	8200Ω	½		BTS-8200	Integrator Network
R62	2Meg 5%	½	WS10789	BTS-2Meg 5%	Vert. Osc. Grid
R63	1.5Meg	½	WS10787	BTS-1.5Meg	Vert. Osc. Plate
R64	100KΩ	½	WS10786	BTS-100K	Voltage Divider
R65	4.7Meg	½	WS10788	BTS-4.7Meg	Voltage Divider
R66	6800Ω	½	WS10151	BTS-6800	Vert. Peaking
R67	2.2Meg 20%	½	WS10193	BTS-2.2Meg	Vert. Output Grid
R68	6800Ω 20%	½	WS10134	BTS-680	Vert. Output Cathode
R69	2700Ω	2	WS10344	BTB-2700	Decoupling
R70	2300Ω	½	WS10143	BTS-2300	Vert. Blanking Network
R71	2200Ω	½	WS10133	BTS-560	Damping
R72	560Ω	½	WS10131	BTS-560	Damping
R73	100K 5%	½	WS10751	BTS-100K 5%	Horiz. AFC Diode Load
R74	100KΩ 5%	½	WS10751	BTS-100K 5%	Horiz. AFC Diode Load
R75	27KΩ	½	WS10163	BTS-27K	Horiz. AFC Feedback Net.
R76	4.7Meg 20%	½	WS10195	BTS-4.7Meg	Horiz. AFC Diode Load
R77	470KΩ	½	WS10184	BTS-470K	Horiz. AFC Filter
R78	3300Ω	½	WS10145	BTS-3300	Horiz. MV Plate
R79	270KΩ	½	WS10180	BTS-270K	Horiz. MV Plate
R80	680KΩ	½	WS10187	BTS-680K	Horiz. MV Plate
R81	1500Ω	½	WS10139	BTS-1500	Horiz. MV Cathode
R82	100KΩ	½	WS10172	BTS-100K	Horiz. MV Grid
R83	15KΩ	3	WS10357	BTB-15K	Decoupling
R84	68Ω 20%	½	WS10116		Parasitic Suppressor
R85	470KΩ	½	WS10184	BTS-470K	Horiz. Output Grid
R86	100Ω	1	WS10318	BW-1-100	Horiz. Output Cathode
R87	12KΩ	5	WS10756	15/4A-12K	Horiz. Output Screen - Wire Wound
R88	33KΩ	1		BTA-33K	Horiz. Output Screen - See note 3.
R89	4700Ω	1	WS10248	BTA-4700	Horiz. AFC Feedback
R90	1Meg	2	WS10390		HV Filter
R91	600Ω	10	WS10741	13/4A-600	Filter - Wire Wound
R92	230KΩ	½	WS10179	BTS-230K	Isolation

Note 1. Some models use a 100Ω resistor in this application.
Note 2. Not used in all models.
● Items R5A, R6lB, R6lC are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Silvertone PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @1.7A	640VCT @3A	5VAC @2.4A	6.3VAC @7.4A	WS09380	P-8169 ①	P-3070	TP-370 ①
				Sec. 4 8.3VAC @ 1.2A				

① Add series resistor to reduce plate voltage

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Silvertone PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	153Ω	940Ω	WS08076	A-8111 ②	A-3000 ②	TSO-1 ③	Vert. Osc. Trans.
T3	295Ω Tapped @ 36Ω	9.7Ω Tapped @ .4Ω @ 3Ω	WS09384		HVO-7 MWC-1 ④		Horiz. Output Trans.
		Sec. 2 9Ω					
T4	800Ω Tapped @ 9Ω		WS09375	A-8123 ②	A-3037	TSO-5	Vert. Output Trans.
T5A	16Ω		WS09704	DY-8	MDF-70		Horiz. Deflection Coils
B	48Ω		W115238 ⑤				Vert. Deflection Coils
T6	12.5KΩ		WS09305 W162326 ⑤				Focus Coil

② Drill one new mounting hole.
③ Mount on top of chassis.
④ Replace width coil with MWC-1
⑤ Includes cable and plug.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Silvertone PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	4.3KΩ	3Ω	450Ω	.9Ω	WS09378	A-3877	A-2930	RO-8 ②	② Drill one new mounting hole

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PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	Silvertone PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P. M.	3.0Ω	W509398	ST-108 Mod. P6-X	6A15	Used in model 1176-2
SP2A	P. M.	3.5Ω	W508174	ST-810 Mod. P69-V	69A2	Used in model 1186-21
	CONE DIA.	V. C. DIA.				
SP1B	6"	9/16"				
SP2B	6"X9"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∽)	SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.210ADC	73Ω	2.9Henries	W508341	C-2325	C-2991 ②	TR-3300	② Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	SILVERTONE PART No.	MERIT PART No.	
L2	Ant. Coil	0Ω	0Ω	W520502		Channel 2
L3	Fil. Choke	0Ω	0Ω	W520518		
L4	RF Choke	0Ω		W520514		
L5	RF Mixer Grid & Osc. Coils	0Ω		W520522		Channel 2
L6	Fil. Choke	0Ω		W520520		
L7	1st Video IF	.7Ω		W520501		Includes Slug Part #W509062
L8	Fil. Choke	0Ω		W507584		
L9	Fil. Choke	0Ω		W507584		
L10	2nd Video IF	.1Ω		W507343	TV-103	Less slug Part # W507357
L11	Fil Choke	0Ω		W507584		
L12	RF Choke	2.3Ω		W507367		
L13	3rd Video IF	.1Ω		W507343	TV-102	Less slug Part # W507357
L14	Fil. Choke	0Ω		W507584		
L15	4.5MC Trap	1.7Ω		W509603	TV-151	Includes condenser C34 and slug Part # W507357
L16	Peaking Coil	11Ω		W509341	TV-185	
L17	Peaking Coil	14Ω		W509342	TV-188	
L18	Sound IF	1.4Ω		W509378	TV-151	
L19	Ratio Det. Trans.	3.8Ω	.7Ω	W509706	TV-110 *	Tap ⓐ .8Ω
L20	Horiz. Osc.	78Ω		W508967	TV-163	Includes slug Part # W508963
L21	Width Coil	1.4Ω		W509361	MWC-2	Inscludes slug Part # W507429

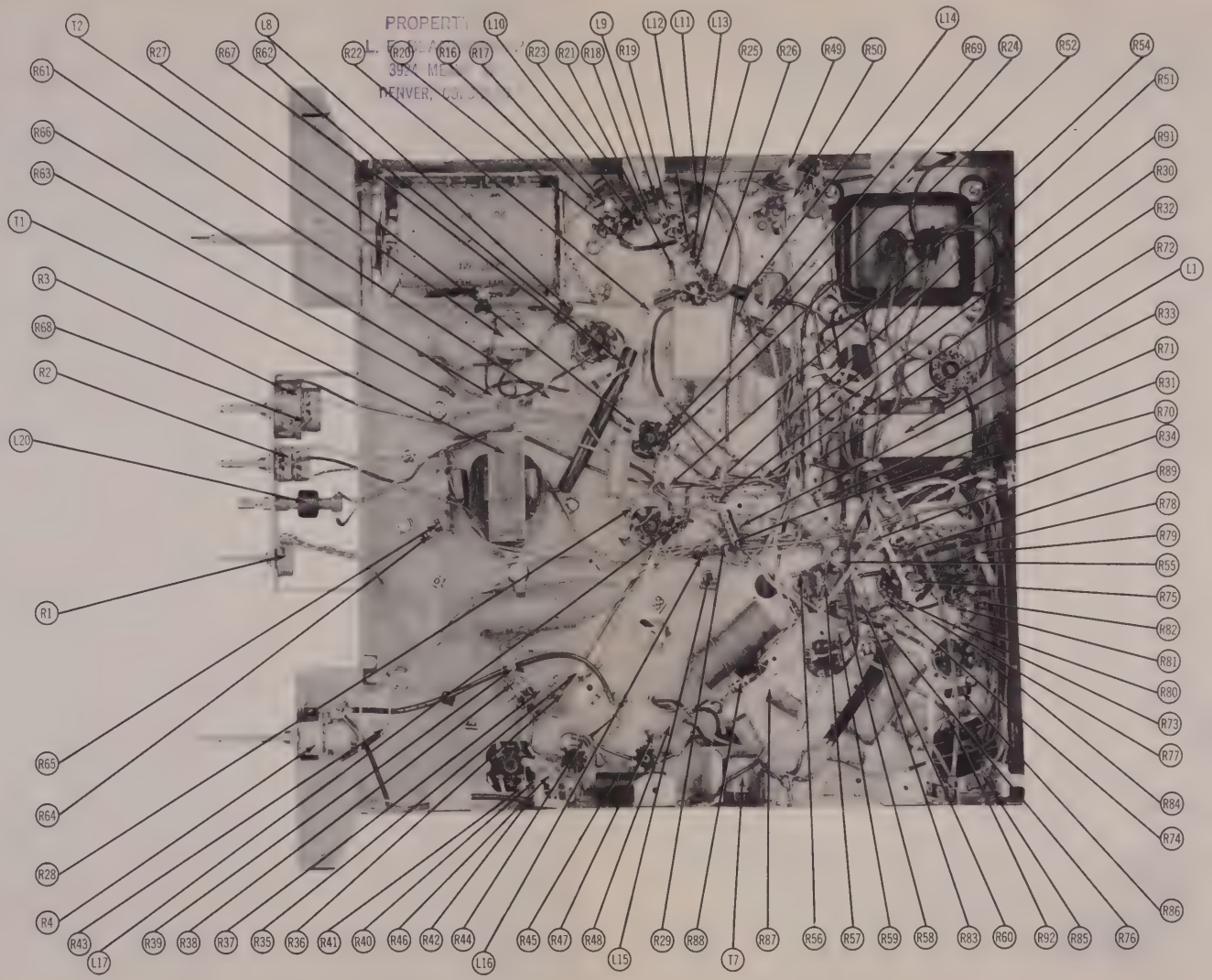
* Drill new mounting holes.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			SILVERTONE PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Pigtail	1A 250V.	W509517		318001		
M2	3AG Pigtail	1/4A. 250V.	W508063		318.250		

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	RF Tuner	W520450	Cpmplete with tubes
M4	4th Video IF	W509613	Less slug
	Capacitor	W513016	82MMF
	RF Choke	W507367	
	Crystal	W509386	1N64
	capacitor	W513432	5MMF
	Peaking	W509340	
	Peaking	W509342	
	Resistor	W510153	8.2KΩ
M5	Ion Trap	W509688	
B1	Trimmer	W520127	Horiz. Drive (25-280MMF)
	Knob	W520441	Channel Selector
	Knob	W520440	Fine Tuning
	Knob	W520439	Off/On Volume
	Knob	W520438	Contrast
	Ant. Coils	W520503	Channel #3
	Ant. Coils	W520504	Channel #4
	Ant. Coils	W520505	Channel #5
	Ant. Coils	W520506	Channel #6
	Ant. Coils	W520507	Channel #7
	Ant. Coils	W520508	Channel #8
	Ant. Coils	W520509	Channel #9
	Ant. Coils	W520510	Channel #10
	Ant. Coils	W520511	Channel #11
	Ant. Coils	W520512	Channel #12
	Ant Coils	W520513	Channel #13
	RF, Mixer, Osc. Coil	W520523	Channel #3
	RF, Mixer, Osc. Coil	W520524	Channel #4
	RF, Mixer, Osc. Coil	W520525	Channel #5
	RF, Mixer, Osc. Coil	W520526	Channel #6
	RF, Mixer, Osc. Coil	W520527	Channel #7
	RF, Mixer, Osc. Coil	W520528	Channel #8
	RF, Mixer, Osc. Coil	W520529	Channel #9
	RF, Mixer, Osc. Coil	W520530	Channel #10
	RF, Mixer, Osc. Coil	W520531	Channel #11
	RF, Mixer, Osc. Coil	W520532	Channel #12
	RF, Mixer, Osc. Coil	W520533	Channel #13



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3010 MEADE ST.
DENVER, COLORADO

STEELMAN
MODEL 215

STEELMAN
MODEL 215

TRADE NAME	Steelman Model 215
MANUFACTURER	Steelman Phono & Radio Co., Inc., 12-30 Anderson Ave., Mt. Vernon, New York
TYPE SET	AC Operated Phono Player with 2 Tube Amplifier
TUBES (TWO)	Types 50L6GT Audio Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .26 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		STEELMAN PART No.	STANDARD REPLACEMENT		
V1	AF Amplifier	50L6GT	50L6GT	7AC	
V2	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	STEELMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150		PRS150/40-30-20		EDL44215		TVA-3448	Filter (Red)
B	40	150							Filter (Blue)
C	20	150							Output Cathode (Green)
C2	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Isolation

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	STEELMAN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½		Q13-133	AM-60-Z	B-60-S	Volume Control
B	Shaft			Not Req.	FS-3	Not Req.	Attach to R1A per instructions
C	Switch			76-1	SW-A	Not Req.	

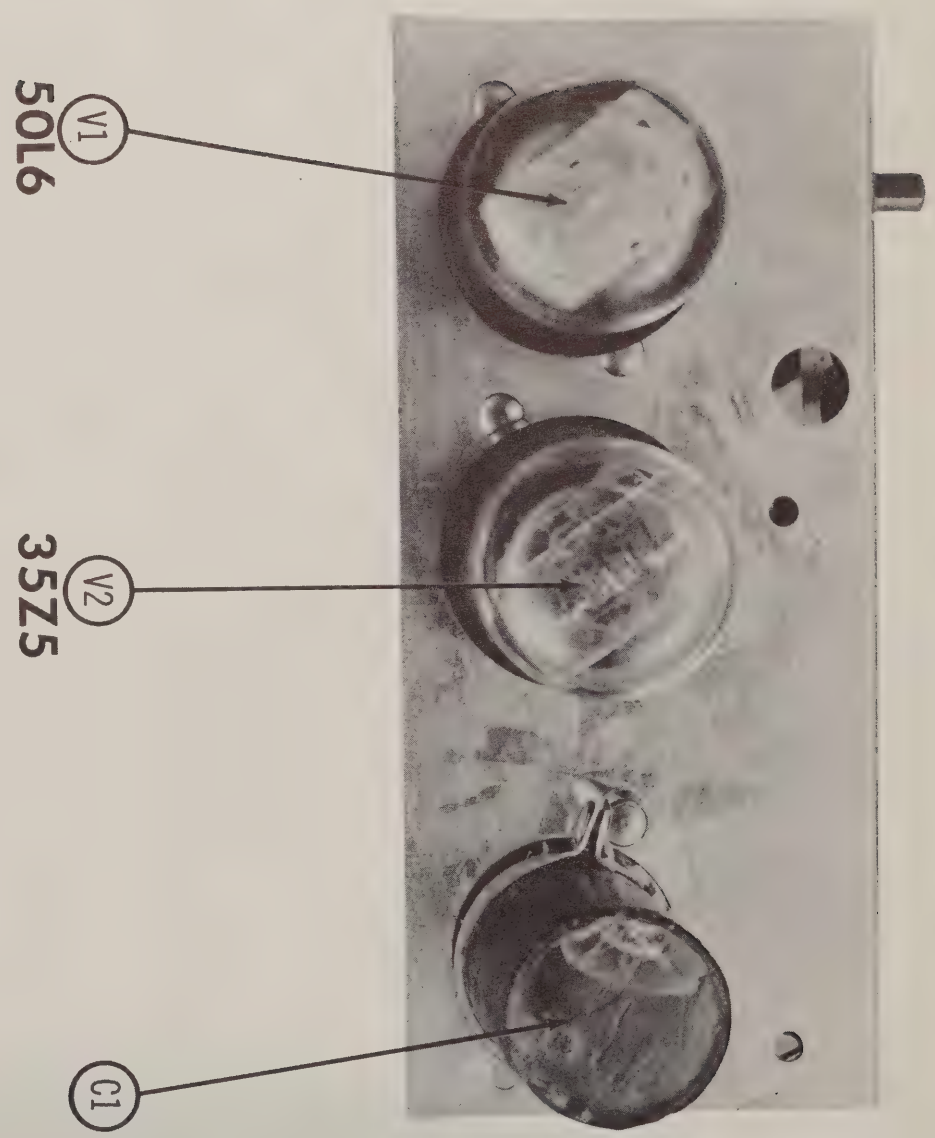
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STEELMAN PART No.	IRC PART No.	
R2	150Ω	½		BTS-150	Output Cathode
R3	330Ω	1		BTA-330	Filter
R4	700Ω	5		1-3/4A-700	Series Filament

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		STEELMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	1.8KΩ	3.5Ω	165Ω	.4Ω		A-3332 ①	A-3025 ①		① Bend Mounting Tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	STEELMAN PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3.5Ω		ST-113 Mod. P4-X	4A1	
	CONE DIA.	V. C. DIA.				
SP1B	4"	9/16"				

PHONO CARTRIDGE and NEEDLE

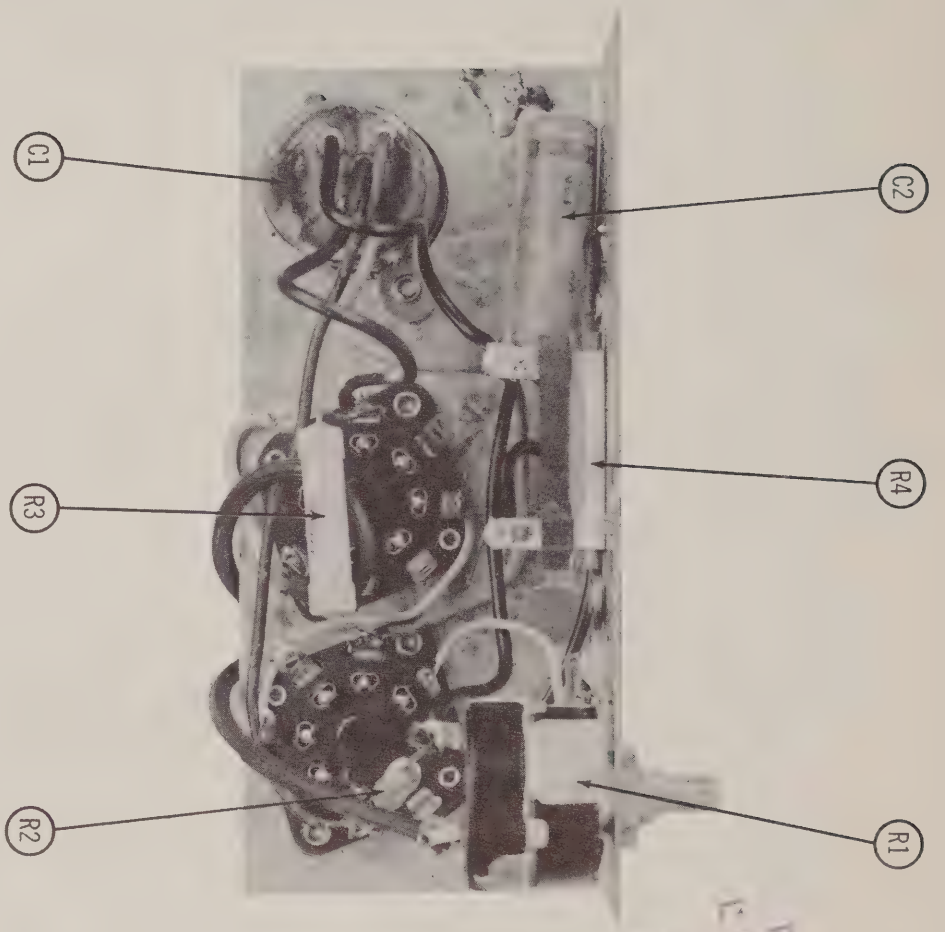
ITEM No.	REPLACEMENT DATA							REMARKS
	STEELMAN PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		* 507-L29				* 25H60		* Complete arm assby.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	STEELMAN PART No.	WALCO PART No.	JENSEN PART No.	
M2		W-14AGA	W-422	

CHASSIS—BOTTOM VIEW



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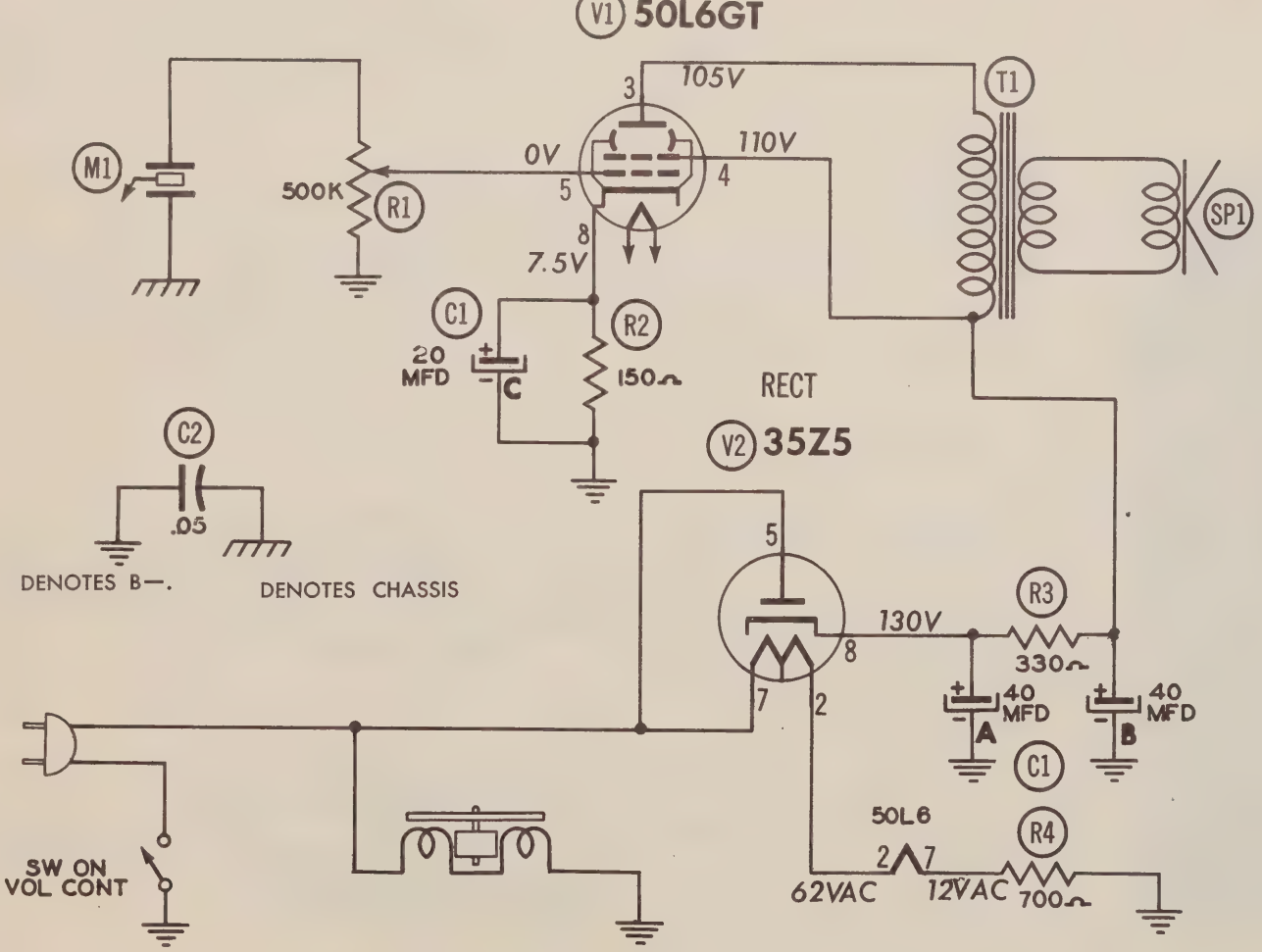
STEELMAN MODEL 215

AUDIO OUTPUT



Pin No.	50L6GT Res.	35Z5GT Res.
1	INF	INF
2	130Ω	130Ω
3	†500Ω	147Ω
4	†330Ω	INF
5	0Ω	165Ω
6	INF	INF
7	80Ω	165Ω
8	150Ω	70KΩ

† MEASURED FROM PIN 8 OF V2

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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165-13

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PHOTOFACT* Folder

*TRADE MARK

STROMBERG-CARLSON
MODELS 321CD2M, CD20, CF, CM, C2M

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MODEL 321CM

STROMBERG-CARLSON
MODELS 321CD2M, CD20, CF, CM, C2M

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DATE 4-52 SET 165 FOLDER 14

STROMBERG-CARLSON
MODELS 321CD2M, CD20, CF, CM, C2M

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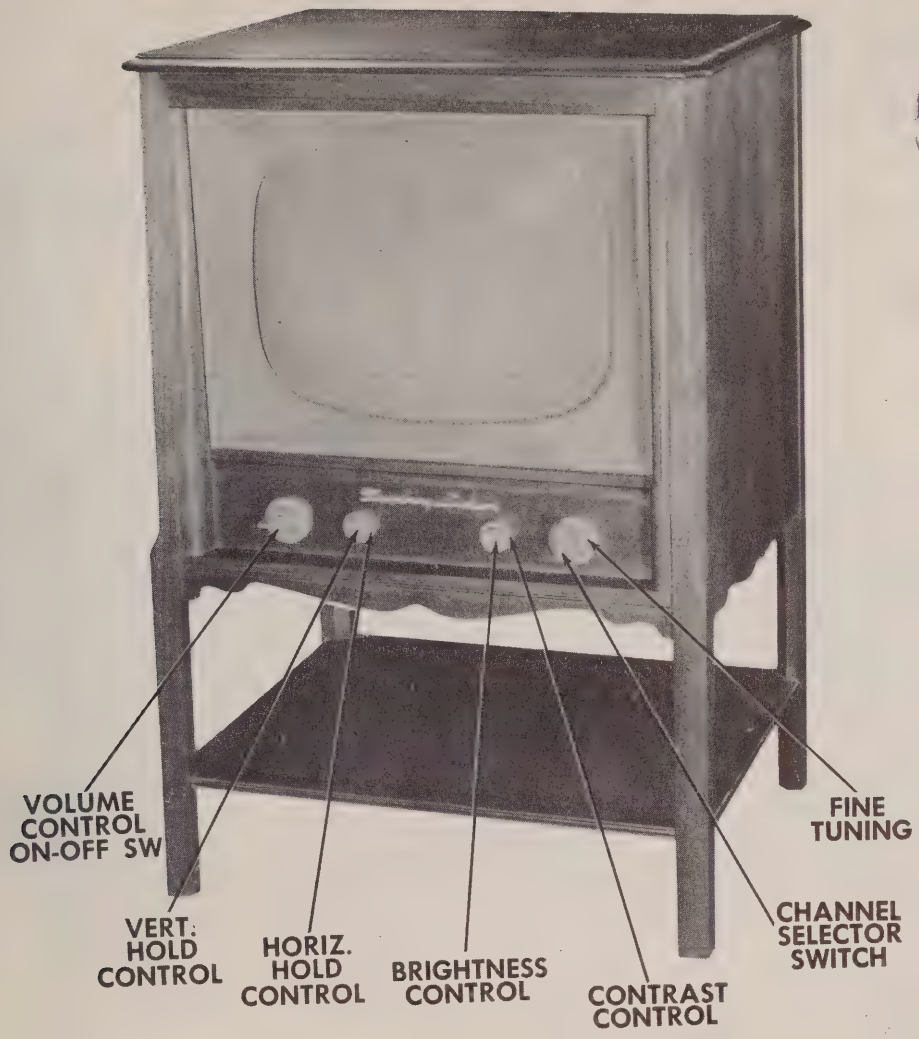
3924 MEAD
DENVER, COLO.



STROMBERG-CARLSON
MODELS 321CD2M, CD20, CF, CM, C2M

STROMBERG CARLSON MODEL 321-CM

TRADE NAME	Stromberg-Carlson Models, (321 Series), 321CD2M, CD20, CF, CM, C2M.
MANUFACTURER	Stromberg-Carlson Co. 100 Carlson Rd., Rochester 3, N.Y.
TYPE SET	Television Receiver
TUBES	Twenty Three
POWER SUPPLY	110-120 Volts AC-60 cycle
RATING	2.4 Amps @ 117 Volts AC
TUNING RANGE-	Channels 2 thru 13

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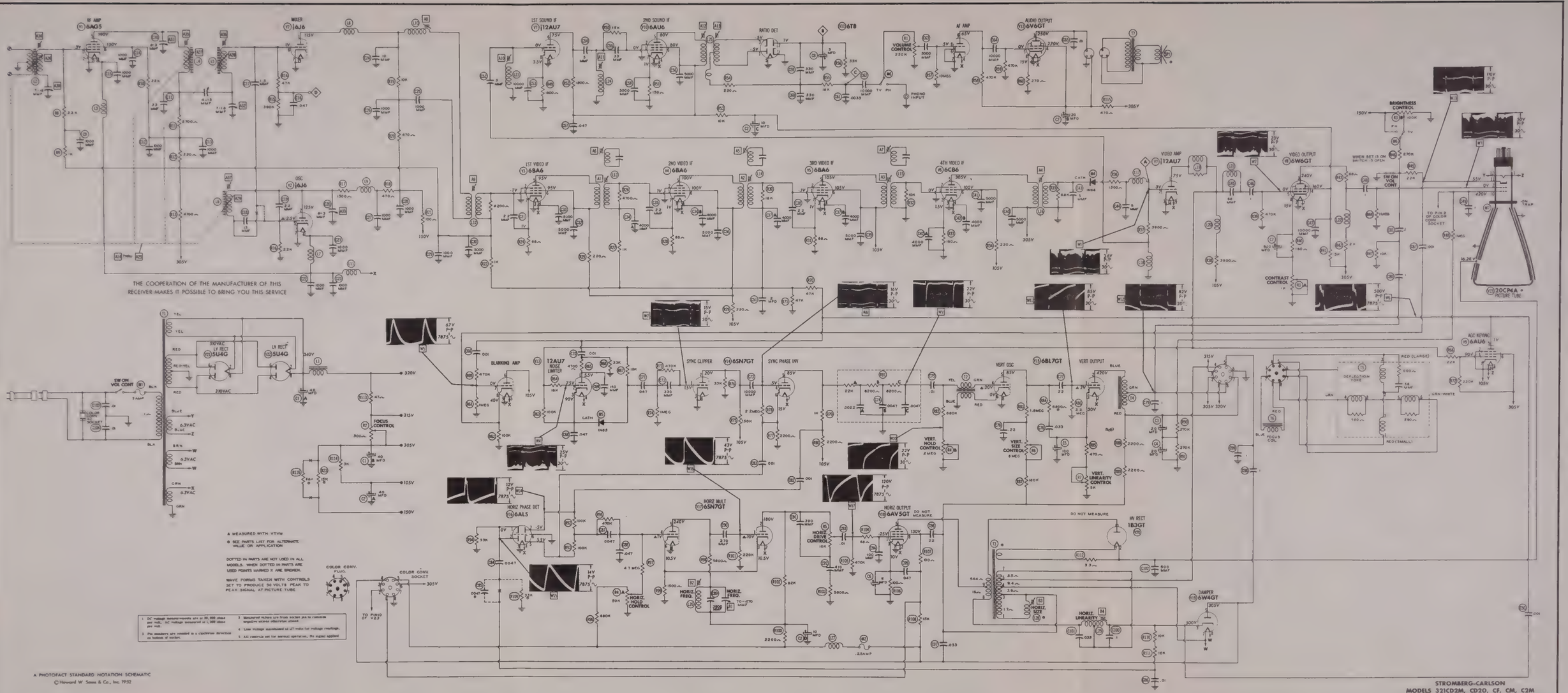
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RF AMP Y1 6AG5
MIXER Y2 6J6
OSC Y3 6J6
1ST SOUND IF Y7 12AU7
2ND SOUND IF Y10 6AU6
RATIO DET Y11 6T8
AF AMP Y12 6V6GT
AUDIO OUTPUT Y13 6V6GT
VOLUME CONTROL 250K
PHONO INPUT
1ST VIDEO IF Y3 6BA6
2ND VIDEO IF Y4 6BA6
3RD VIDEO IF Y5 6BA6
4TH VIDEO IF Y6 6CB6
VIDEO AMP Y7 12AU7
VIDEO OUTPUT Y8 6W6GT
BRIGHTNESS CONTROL
CONTRAST CONTROL
Y9 20CP4A PICTURE TUBE
SW ON VOL CONT
LV RECT Y20 5U4G
LV RECT Y21 5U4G
320VAC
6.3VAC
FOCUS CONTROL
BLANKING AMP
12AU7 NOISE LIMITER
SYNC CLIPPER
Y14 6SN7GT
SYNC PHASE INV
VERT OSC
Y13 6BL7GT
VERT OUTPUT
VERT. HOLD CONTROL 2 MEG
VERT. SIZE CONTROL 5 MEG
VERT. LINEARITY CONTROL 5K
AGC KEYING Y5 6AU6
HORIZ PHASE DET Y14 6AL5
HORIZ MULT Y17 6SN7GT
HORIZ OUTPUT Y18 6AV5GT
HORIZ. DRIVE CONTROL 10K
HORIZ. HOLD CONTROL 50K
HORIZ. FREQ.
HORIZ. SIZE
HORIZ. LINEARITY
HV RECT 1B3GT
DAMPER Y19 6W4GT
DEFLECTION YOKE
RED (LARGE)
RED (SMALL)
GRN-WHITE
BLUE FOCUS COIL
COLOR CONV. PLUG
COLOR CONV. SOCKET
TO PIN 10 OF Y23
TO PINS OF COLOR CONV. SOCKET
WHEN SET IS ON SWITCH IS OPEN
DO NOT MEASURE
A MEASURED WITH VTVM
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements are at 20,000 ohms per volt. AC voltage measured at 1,000 ohms per volt.
2 Pin numbers are counted in a clockwise direction as bottom of socket.
3 Measured values are from socket pin to ground negative lead otherwise noted.
4 Line voltage maintained at 117 volts for voltage readings.
5 All controls set for normal operation, No signal applied
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STROMBERG-CARLSON
MODELS 321CD2M, CD20, CF, CM, C2M

STROMBERG-CARLSON
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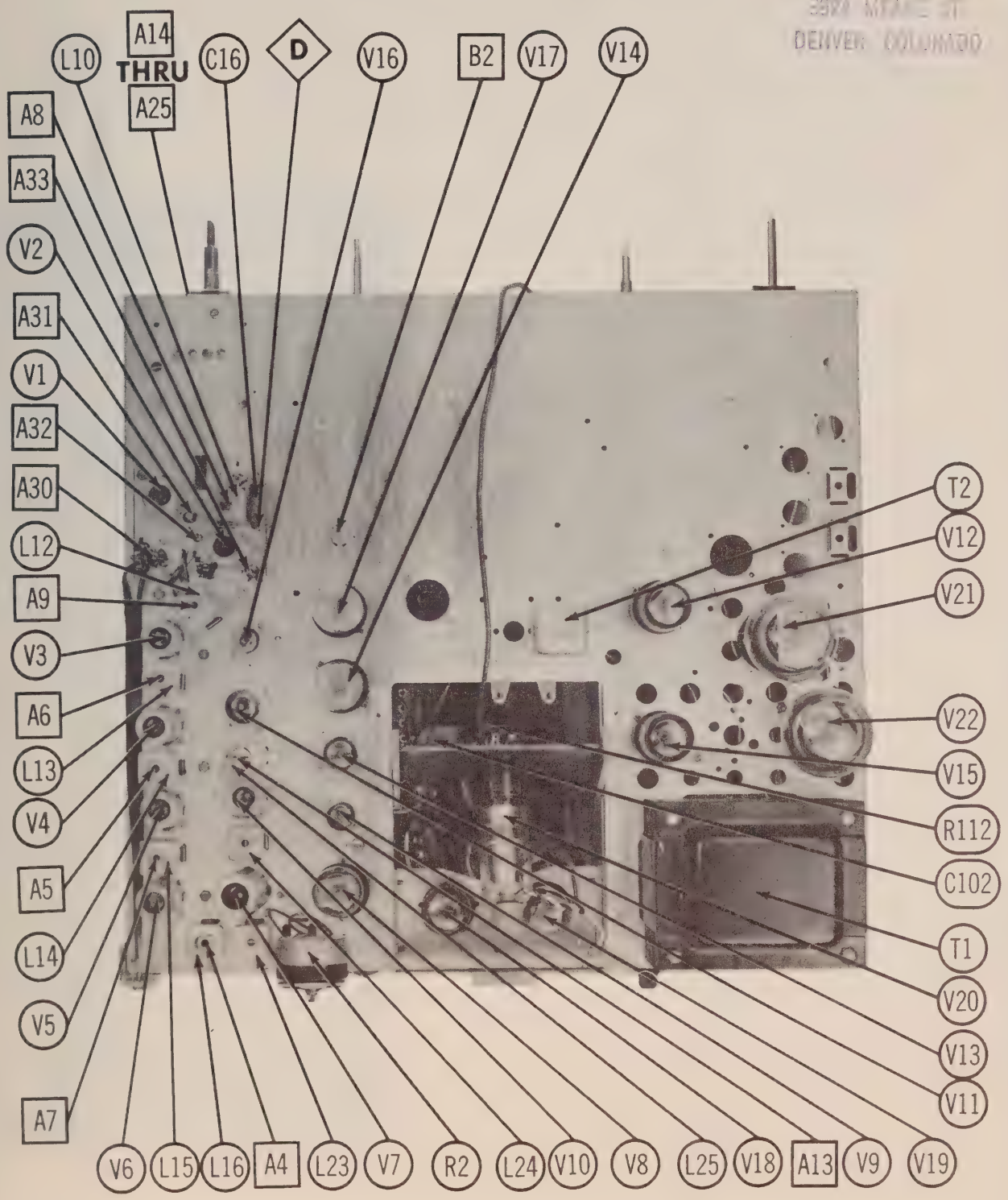
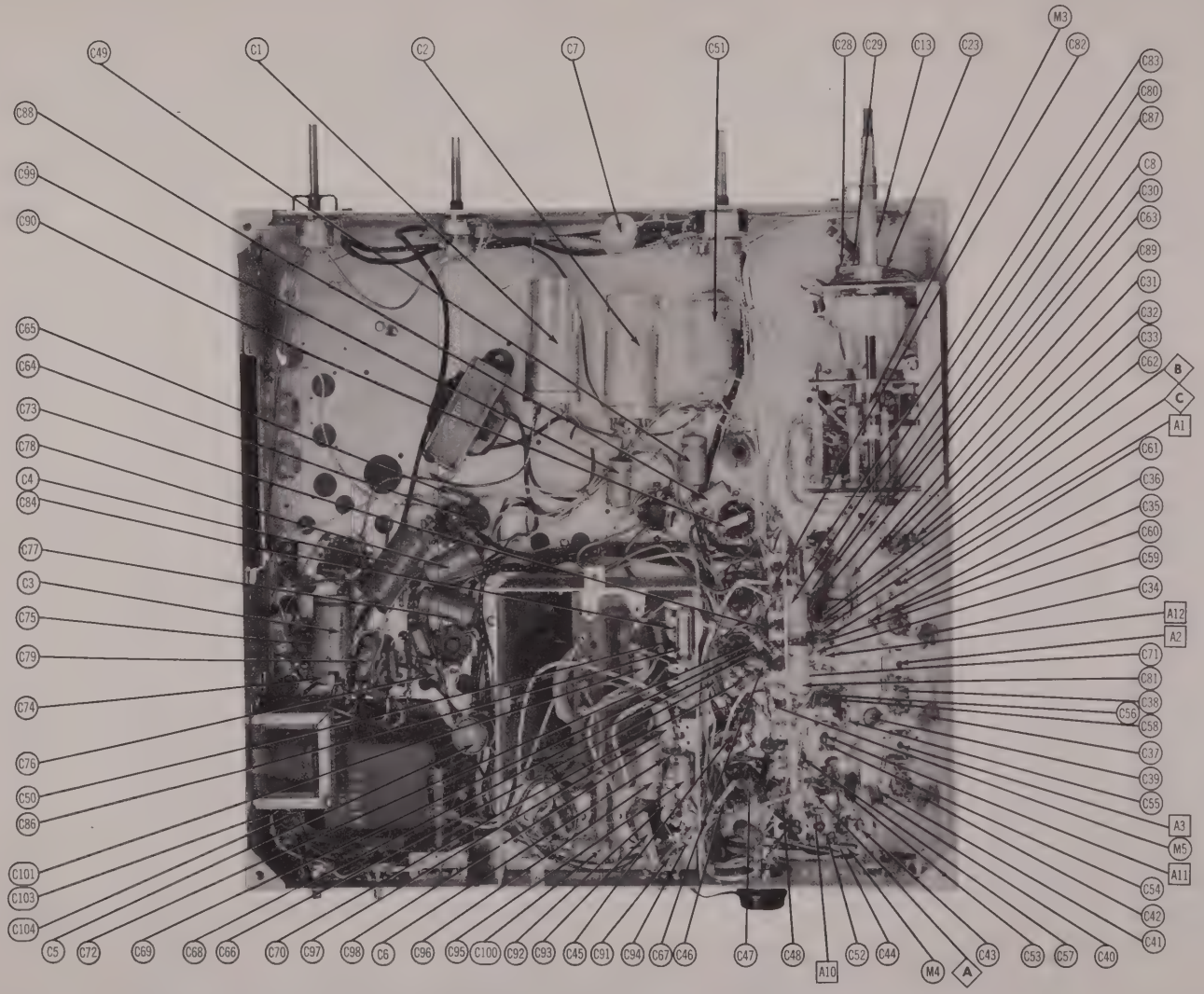


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TOP VIEW

BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis, do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded lead of C51, connect the positive lead to chassis. Remove the converter tube, (V2) and replace it with a 6J6 which has pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications. Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	100MMF	High side to Pin 1, (grid) of 6BA6, (V3). Low side to chassis.	24MC (10MC swp.)	22.7MC 26.4MC	Any	Vert. amp. thru 47KΩ to Point (A). Low side to chassis.	A1, A2, A3, A4	Adjust A1 for maximum amplitude in the area of 23.7MC. Adjust A2 for maximum near 23MC. Adjust A3 for maximum near 26MC. Adjust A4 for maximum near 25.3MC. Maintaining the above relative frequency settings adjust A1 thru A4 for response curve similar to Fig. 1.
2.	"	"	22MC (2MC swp.)	21.9MC	"	"	A5, A6	Adjust A5 for MINIMUM marker indication at the 21.9MC point on response curve. Adjust A6 for response curve similar to Fig. 2.
3.	"	"	27MC (2MC swp.)	27.9MC	"	"	A7	Adjust for MINIMUM marker indication at the 27.9MC point on response curve. Recheck response curve as in step 1. If necessary retouch A1 thru A4 for proper response.
4.	Direct	High side to an ungounded tube shield floating over dummy converter tube tube, (V2).	24MC (10MC swp.)	22.7MC 26.4MC	"	"	A8, A9	Adjust for response curve similar to Fig. 3.

SOUND IF ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to Pin 2, (grid) of 12AU7 (V7). Low side to chassis.	4.5MC (450KC swp	4.5MC	Any	Vert. amp. to Point (B). Low side to chassis.	A10, A11, A12	Disconnect stabilizor capacitor C8. Adjust for maximum amplitude and symmetry as per Fig. 4.
6.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A13	Reconnect capacitor C8. Adjust A13 so 4.5MC occurs at center of crossover lines as per Fig. 5. SLIGHTLY retouch A12 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

If complete tuner alignment is to be performed, skip step 7. Remove the dummy converter tube and replace the original 6J6 in its socket. The oscillator adjustments are reached through a hole just above the channel switch shaft. Notice that the fine tuning control must be centered before the adjustment screws are accessible.
The correct adjustment screw becomes accessible through the hole as the channel switch is tuned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC swp.)	211.25MC	13	Vert. amp. to Point (A). Low side to chassis.	A14	Adjust to place video marker at 50% on response curve as shown in Fig. 7.
			207MC (10MC swp.)	205.25MC	12		A15	
			201MC (10MC swp.)	199.25MC	11		A16	
			195MC (10MC swp.)	193.25MC	10		A17	
			189MC (10MC swp.)	187.25MC	9		A18	
			183MC (10MC swp.)	181.25MC	8		A19	
			177MC (10MC swp.)	175.25MC	7		A20	
			85MC (10MC swp.)	83.25MC	6		A21	
			79MC (10MC swp.)	77.25MC	5		A22	
			69MC (10MC swp.)	67.25MC	4		A23	
			63MC (10MC swp.)	61.25MC	3		A24	
			57MC (10MC swp.)	55.25MC	2		A25	

FIG. 1

FIG. 2

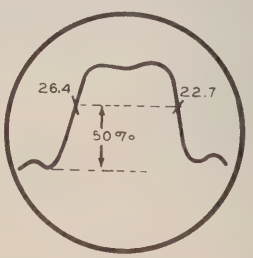


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

TUNER ALIGNMENT

Remove the dummy converter tube and replace the original 6J6. Unsolder C16 from test point (D).
Turn all oscillator adjust screws so the end of the screw is flush with the cam face.
Connect a marker generator to an ungrounded tube shield floating over the converter tube (V2). Set this marker generator to 21.9 MC to provide a reference marker on the response curve.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	85MC (10MC swp.)	83.25MC 87.75MC	6	Vert. amp. to Point (D). Low side to chassis.	A26, A27 A28, A29	Adjust A26, A27 & A28 for response curve similar to Fig. 6 with markers above 65%. Adjust A28 so sound marker and reference marker coincide on response curve.
9.	"	"	213MC (10MC swp.)	211.25MC 215.75MC	13	"	A30, A31 A32, A33	Adjust A30, A31 & A32 for response curve similar to Fig. 6. Adjust A33 for coincidence of sound and reference markers. Recheck channel 6. If necessary repeat steps 8 & 9 until proper response is obtained.
10.	"	"	57MC (10MC swp.)	55.25MC 59.75MC	2	"	A34, A35 A36, A37	Adjust A34, A35 & A36 for proper response. Adjust A37 for sound and reference marker coincidence. Recheck channel 6. Check all channels for proper response. If necessary make compromise adjustments as needed to obtain optimum response on all channels. Adjust A14 thru A25 for coincidence of sound & reference marker on each channel.

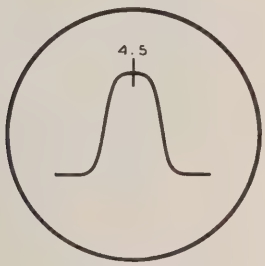


FIG. 4

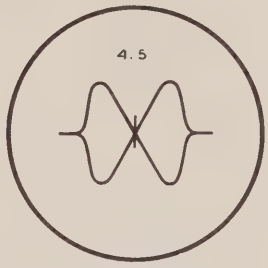


FIG. 5

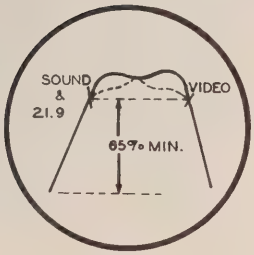


FIG. 6

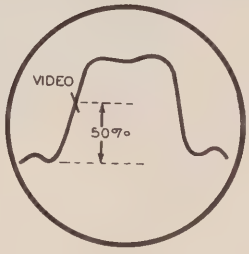
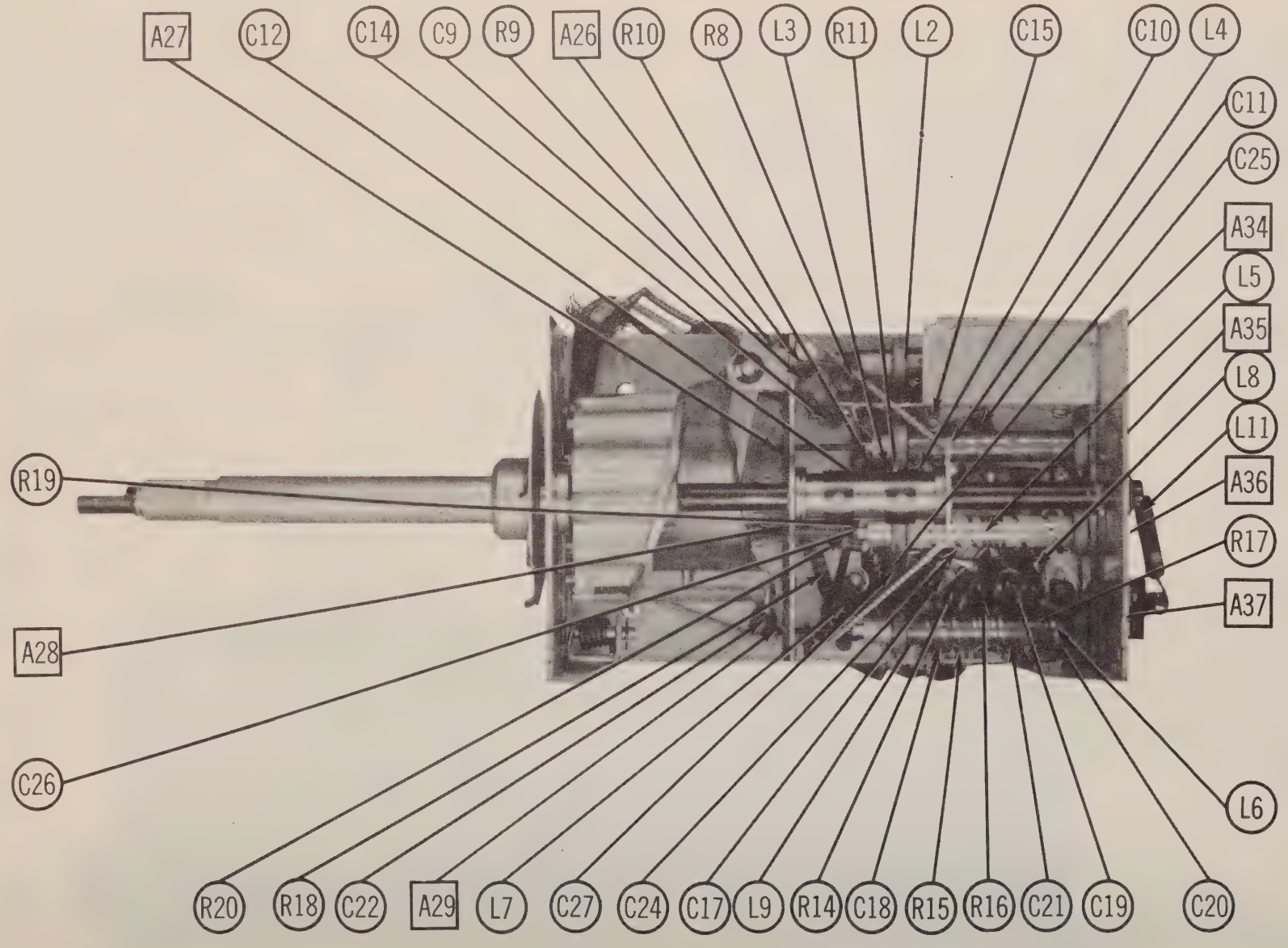


FIG. 7

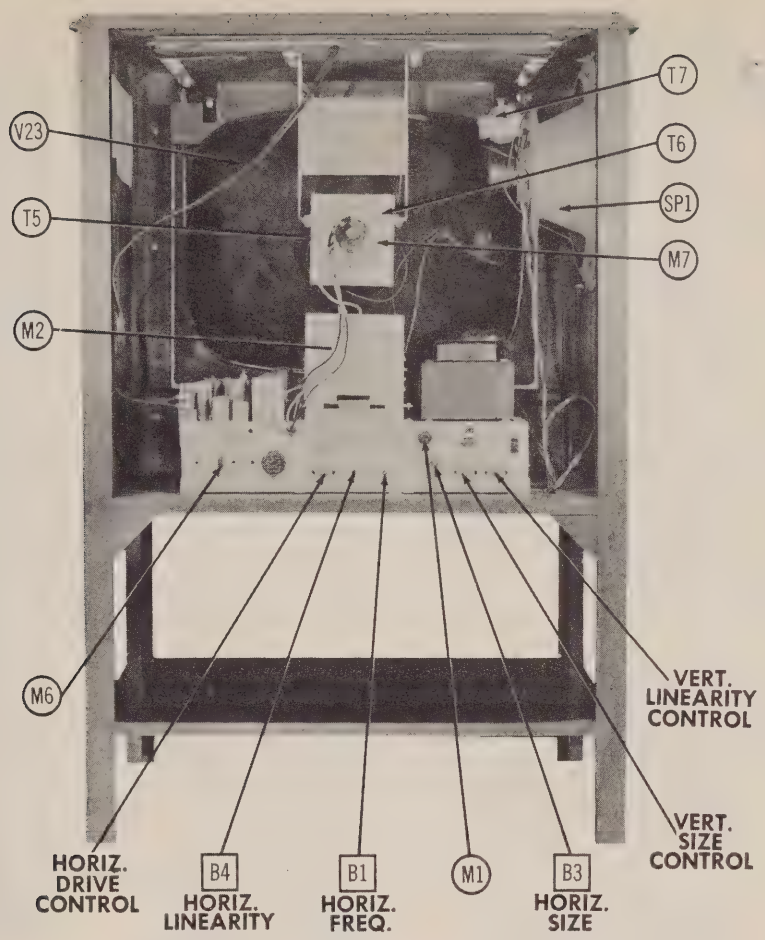
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	71KΩ	0Ω	0Ω	.2Ω	†7.7KΩ	†27KΩ	0Ω		
V 2	6J6	†21KΩ	†12KΩ	0Ω	.2Ω	22KΩ	435KΩ	0Ω		
V 3	6BA6	48KΩ	0Ω	0Ω	.1Ω	†3.5KΩ	†3.6KΩ	68Ω		
V 4	6BA6	48KΩ	0Ω	0Ω	.1Ω	†3.3KΩ	†3.3KΩ	68Ω		
V 5	6BA6	47KΩ	0Ω	0Ω	.1Ω	†3.1KΩ	†3.1KΩ	68Ω		
V 6	6CB6	.3Ω	180Ω	0Ω	.1Ω	†110Ω	†3.3KΩ	0Ω		
V 7	12AU7	†7KΩ	3.9KΩ	0Ω	0Ω	0Ω	†27KΩ	3.5Ω	1.8KΩ	.1Ω
V 8	6W6GT	0Ω	0Ω	†2.2KΩ	†15KΩ	470KΩ	335KΩ	.1Ω	300Ω	
V 9	6AU6	†26KΩ	†3.1KΩ	■0Ω	■.4Ω	94KΩ	†110Ω	†3.1KΩ		
V 10	6AU6	15KΩ	0Ω	0Ω	.1Ω	†25KΩ	†25KΩ	150Ω		
V 11	6T8	INF	33KΩ	INF	.1Ω	0Ω	0Ω	0Ω	10Meg	†470KΩ
V 12	6V6GT	0Ω	0Ω	†1KΩ	†580Ω	470KΩ	†470KΩ	.1Ω	270Ω	
V 13	12AU7	37KΩ	†25KΩ	†25KΩ	.1Ω	.1Ω	†3.1KΩ	1Meg	100KΩ	0Ω
V 14	6SN7GT	1.5Meg	28KΩ	0Ω	2.2Meg	†6.3KΩ	2.2KΩ	.1Ω	0Ω	
V 15	6BL7GT	2.2Meg	#5.6KΩ	1.9KΩ	1.2Meg	#3.5Meg	170Ω	.1Ω	0Ω	
V 16	6AL5	33KΩ	33KΩ	0Ω	.1Ω	5.3Meg	0Ω	5.3Meg		
V 17	6SN7GT	220KΩ	†84KΩ	1.5KΩ	4.7Meg	†8KΩ	1.5KΩ	.1Ω	0Ω	
V 18	6AV5GT	470KΩ	.1Ω	100Ω	INF	#22Ω	INF	0Ω	†15KΩ	
V 19	6W4GT	INF	†115Ω	225KΩ	INF	†120Ω	†115Ω	#15Ω	#15Ω	
V 20	1B3GT	PINS 1 THROUGH 8 HAVE INF RESISTANCE								TOP CAP #575Ω
V 21	5U4G	INF	45KΩ	†4.8KΩ	19Ω	INF	20Ω	INF	45KΩ	
V 22	5U4G	†10KΩ	45KΩ	INF	19Ω	INF	20Ω	INF	45KΩ	
V 23	20CP4A	■.4Ω	1Meg	PIN 10 #1Meg	PIN 11 335KΩ	PIN 12 ■0Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PINS 8 OF V21 & V22
# MEASURED FROM PIN 3 OF V19
■ MEASURE FROM 105 VDC LINE


A27
C12
C14
C9
R9
A26
R10
R8
L3
R11
L2
C15
C10
L4
C11
C25
A34
L5
A35
L8
L11
A36
R17
A37
L6
R19
A28
C26
R20
R18
C22
A29
L7
C27
C24
C17
L9
R14
C18
R15
R16
C21
C19
C20

RF TUNER



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency trimmer, (B1), to the center of the range over which the picture sychronizes horizontally. If adjustment of B1 will not synchronize the picture, turn B1 to approximately the center of its range and adjust the horizontal frequency slug, (B2), for synchronization.

Adjust the horizontal drive control clockwise as far as possible without crowding or bright vertical lines appearing in the picture.

Adjust the horizontal size slug, (B3), until the picture is slightly wider than necessary to fill the mask horizontally .

Adjust the horizontal linearity slug, (B4), until the picture is synmetrical from left to right.

Since both width and horizontal linearity are effected by the drive control, it may be necessary to adjust them Alternately for optimum results.

DISASSEMBLY INSTRUCTIONS

1. Remove 5 push on and 2 set screw type control knobs from front panel.
2. Remove 7 wood screws holding rear cover. Remove cover.
3. Disconnect speaker and built in antenna.
4. Remove 4 nuts holding speaker. Remove speaker.
5. Disconnect picture tube, HV lead and yoke plug.
6. Remove 5 chassis bolts. Remove chassis.

NOTE: For picture tube removal it is necessary to remove chassis as outlined above.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: STROMBERG CARLSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6AG5	6AG5	TBD	
V2	Converter	6J6	6J6	TBF	
V3	1st Video IF Amp.	6BA6	6BA6	TBK	
V4	2nd Video IF Amp.	6BA6	6BA6	TBK	
V5	3rd Video IF Amp.	6BA6	6BA6	TBK	
V6	4th Video IF Amp.	6CB6	6CB6	TCM	
V7	Video Amplifier 1st Sound IF Amp.	12AU7	12AU7	9A	
V8	Video Output	6W6GT	6W6GT	7AC	
V9	Keyed AGC	6AU6	6AU6	TBK	
V10	2nd Sound IF Amp.	6AU6	6AU6	TBK	
V11	AF Amplifier	6T8	6T8	9E	
V12	Audio Output	6V6GT	6V6GT	7AC	
V13	Noise Limiter-Blanking Amp.	12AU7	12AU7	9A	
V14	Phase Inverter-Sync. Clipper	6SN7GT	6SN7GT	8BD	
V15	Vert. Oscillator-Vert. Output	6BL7GT	6BL7GT	8BD	
V16	Horiz. Phase Det.	6AL5	6AL5	6BT	
V17	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V18	Horiz. Output	6AV5GT	6AV5GT	6CK	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	
V22	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Stromberg Carls. PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V23A	20CP4A	20CP4A		12D	
B	20CP4	20CP4		12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Stromberg Carlson PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	111095	AFH2-57		UPT4445		TVL-2754	▲ Filter
B	40	450							▲ Filter
C2A	40	450	111094	AFH4-18		UPT42U145		TVL-4840	● Decoupling
B	20	450							● Audio Output Dec.
C	10	450							▲ Video Output Screen
D	10	450							Horiz. MV Decoupling
C3	30	300	111089	PRS450/20		BR2035A		TVA-1608	Vert. Output Dec.
C4	20	300	111089	PRS450/20		BR2035A		TVA-1608	Vert. Output Dec.
C5	100	50	111097	PRS50/100		BRH50I		TVA-1310	Vert. Output Cathode
C6	5	50	111047	PRS150/4		BR550		TVA-1303	Horiz. Output Cathode
C7	500	12	111082	PRS12/500		BRH125A		TVA-1312	Video Output Cathode
C8	5	50	111047	PRS150/4		BR550		TVA-1303	Stabilizing Cap.
C9	1000		111158	BPD-001	DD-102	TM5D1	801-001	58K-D1	AGC Filter
C10	.8-3		111131		329-3				Variable Trimmer
C11	33		111145	SI33NP0	TCZ-33		NP0K-330	5TCC-Q33	Fixed Trimmer
C12	1000		111158	BPD-001	DD-102	TM5D1	801-001	58K-D1	RF Amp. Plate Dec.
C13	1000		110050	BPD-001	DD-102	TM5D1	801-001	50IC-1000	RF Amp. Plate Dec.
C14	1000		111158	BPD-001	DD-102	TM5D1	801-001	58K-D1	RF Amp. Screen Bypass
C15	1000		111158	BPD-001	DD-102	TM5D1	801-001	58K-D1	RF Amp. Fil. Bypass
C16	.047	400	110722	P488-047	DF-503	PTE4847		4TM-S47	Mixer Grid Filter
C17	1.5		111142	SIL.5NP0	TCZ-1.5		NP0K-1R5		Osc. Coupling
C18	15		111149	SI15N750	TCN-150		N750K-150	5TCU-Q15	Osc. Grid Cap.
C19	2.2		111148				N750K-2R2		Osc. Feedback
C20	.8-3		111131		329-3				Variable Trimmer
C21	1000		111158	BPD-001	DD-102	TM5D1	801-001	58K-D1	Conv. Fil. Bypass
C22	1000		111158	BPD-001	DD-102	TM5D1	801-001	58K-D1	Fil. Bypass
C23	1000		110050	BPD-001	DD-102	TM5D1	801-001	50IC-1000	Fil. Bypass
C24	10		111146	SI10	DH-100		GP1K-100	5GA-Q1	Fixed Trimmer
C25	1000		111158	BPD-001	DD-102	TM-5D1	801-001	58K-D1	Mixer Plate Dec.
C26	1000		111158	BPD-001	DD-102	TM-5D1	801-001	58K-D1	RF Bypass
C27	1000		111158	BPD-001	DD-102	TM-5D1	801-001	58K-D1	RF Bypass
C28	1000		110050	BPD-001	DD-102	TM-5D1	801-001	50IC-1000	RF Bypass
C29	1000		110050	BPD-001	DD-102	TM-5D1	801-001	50IC-1000	AGC Filter
C30	5000		110586	BPD-005	DD-502	TM5D5	81L-005	58K-D5	AGC Filter
C31	2.2		110439		TCZ-2.2		NP0K-2R2		Neutralizing Cap.
C32	5000		110586	BPD-005	DD-502	TM5D5	81L-005	58K-D5	1st. Video IF Dec.
C33	5000		110586	BPD-005	DD-502	TM5D5	81L-005	58K-D5	1st. Video IF Fil.
C34A	4000		110685	BPD-22K04	D6-402	TM5DD4	822-004	58K-D4	AGC Filter
B	4000				D6-402				2nd. Video IF Fil.
C35	2.2		110439		TC-2-2.2		NP0K-2R2		Neutralizing Cap.
C36	5000		110586	BPD-005	DD-502	TM-5D5	81I-005	58K-D5	2nd Video IF Dec.
C37A	4000		110685	BPD-22K04	D6-402	TM5DD4	822-004	58K-D4	AGC Filter
B	4000				D6-402				3rd Video IF Fil.
C38	2.2		110439		TCZ-2.2		NP0K-2R2		Neutralizing Cap.
C39	5000		110588	bPD-005	DD-502	TM5D5	81I-005	58K-D5	3rd Video IF Dec.
C40	5000		110588	BPD-005	DD-502	TM5D5	81I-005	58K-D5	4th Video IF Plate
C41	5000		110586	BPD-005	DD-502	TM5D5	81I-005	58K-D5	4th Video IF Screen
C42A	4000		110685	BPD-22K004	D6-402	TM5DD4	822-004	58K-D4	4th Video IF Cathode
B	4000				D6-402				4th Video IF Fil.
C43	5		110598	SI5NP0	TCZ-4.7		NP0K-050		Fixed Trimmer
C44	5		110598	SI5NP0	TCZ-4.7		NP0K-050		Video Det. Filter
C45	68	500		1468-00007		SR5Q7		MS-47	Fixed Trimmer
C46	.1	400	110724	P468-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C47	10000		110672	BPD-01	DD-103	TM5S1	821-01	58K-B1	Video Amp. Screen
C48	.1	400	110724	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C49	.1	600	110743	P688-1	DF-104	PTE6P1		6TM-P1	Accelerating Anode Bypass
C50	.001	600	110712	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Feedback
C51	2	50	110675	289ZGXY		MT2W2W2			AGC Filter
C52	5		110598	SI5		5W5V5	GP1K-050		Sound IF Coupling
C53	1000		110672	BPD-01	DD-103	TM5S1	821-01	58K-B1	1st Sound IF Cathode
C54	5		110598	SI5		5W5V5	GP1K-050		Sound IF Coupling
C55	33		110488	SI33	D6-330		GP1K-330	5GA-Q33	2nd Sound IF Grid

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STROMBERG CARLSON PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56	5000		110586	BPD-005	DD-502	TM5D5	81I-005	58K-D5	2nd Sound IF Dec.
C57	.047	200	110660	P268-047	DF-503	PTE4S47		2TM-S47	RF Bypass
C58	5000		110586	BPD-005	DD-503	TM5D5	81I-005	58K-D5	2nd Sound IF Cathode
C59	330		110454	SI330	D6-331		GP2K-331	5GA-T33	Diode Load Cap.
C60	330		110454	SI330	D6-331		GP2K-331	5GA-T33	Diode Load Cap.
C61	.0033	400	110715	P688-0033	D6-332	[illegible]	GP2-333-332	6TM-D3	De-emphasis
C62	10000		110672	BPD-01	DD-103	[illegible]	821-01	58K-S1	Audio Coupling
C63	5000		110586	BPD-005	DD-502	TM5D5	81I-005	58K-D5	Audio Coupling
C64	10000		110672	BPD-01	DD-103	TM5S1	821-01	58K-S1	Audio Coupling
C65	.01	600	110737	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Output Plate
C66	.001	600	110712	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Blanking Amp. Coupling
C67	.001	600	110712	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Blanking Net.
C68	.047	400	110723	P488-047	DF-503	PTE4S47		4TM-S47	Noise Limiter Cathode
C69	150	3000	110696						Voltage Divider
C70	.001	600	110712	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Noise Limiter Coupling
C71	.047	400	110723	P488-047	DF-503	PTE4S47		4TM-S47	Sync. Coupling
C72	330		110463	SI330	D6-331		GP2K-331	5GA-T33	Sync. Coupling
C73	10000		110672	BPD-01	DD-103	TM5S1	821-01	58K-S1	Sync. Coupling
C74A	.0022			P688-0022		PTE6D22	GP2-333-222		Vert. Integrator Net.
L	.0047		◆ 138200	P688-0047	◆ PC-104	PTE6D47	GP2-333-472	◆101C1	Vert. Integrator Net.
C	.0047			P688-0047		PTE6D47	GP2-333-472		Vert. Integrator Net.
C75	.01	400	110718	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Vert. Osc. Grid Cap.
C76	.033	600	110740	P688-033		PTE6S3		6TM-S3	Vert. Discharge
C77	.22	400	110726	P488-22		PTE4P22		4TM-P22	Vert. Sweep Coupling'
C78	.22	400	110726	P488-22		PTE4P22		4TM-P22	RF Bypass
C79	.1	400	110724	P488-1	DF-104	PTE4P1		4TM-P1	Integrator Net.
C80	.1	400	110724	P488-1	DF-104	PTE4P1		4TM-P1	Vert.Sweep Coupling
C81	.1	400	110724	P488-1	DF-104	PTE4P1		4TM-P1	Vert. Sweep Coupling
C82	.001	400	110712	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz.Sync.Coupling
C83	.001	400	110712	P688-001	D6-102	PTE6D1	GP2L-103	6TM-D1	Horiz. Sync. Coupling
C84	.0047	400	110716	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Horiz. Feedback
C85	.0047	400	110716	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Horiz. Feedback ◆
C86	.01	600	110737	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Voltage Divider
C87	.0047	400	110716	P688-0047	D6-472	PTE6D47	GP2-333-472	6TM-D47	Horiz.AFC Coupling
C88	.047	400	110722	P488-047	DF-503	PTE4S47		4TM-S47	Horiz.AFC Filter
C89	3900	500	110309	1464-004		DR5D4			Fixed Trimmer
C90	270	500	110308	1469-0003		SR5T3		MS-33	Horiz.MV Feedback
C91	390	500	110262	1469-0004		SR5T4		MS-34	Horiz. Discharge
C92	470	500	110209	1469-0005		SR5T5		MS-35	Horiz. Discharge
C93	.01	600	110737	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	MV Filter
C94	100		110460	SI100	D6-101	TM5T1	GP1K-101	5GA-T1	Horiz. Output Grid
C95	.047	400	110722	P488-047	DF-503	PTE4S47		4TM-S47	Horiz. Output Screen
C96	.22	400	110725	P488-22		PTE4P22		4TM-P22	Horiz. Output Screen
C97	.033	400	110721	P488-033		PTE4S3		4TM-S3	RF Bypass
C98	.1	400	110724	P488-1	DF-104	PTE4P1		4TM-P1	Horiz.Sweep Coupling
C99	.1	600	110743	P686-1	DF-104	PTE6P1		6TM-P1	Voltage Divider
C100	.1	400	110724	P488-1		PTE4P1		4TM-P1	Damper Filter
C101	.033	400	110721	P488-033					Damper Filter
C102	500	20000	110680	HV20A		MM-A20T5	410-501		HV Filter
C103	.01	1000	110588	P1088-01		PTE16S1		MB-S1	Line Filter
C104	.01	1000	110586	P1088-01		PTE16S1		MB-S1	Line Filter

* Not used in all Models
◆ Items C74A, C74B, C74C, R81A, R81B, R81C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stromberg Carlson PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	250KΩ	½	145134			B-52-S	Volume Control & Sw.
R2	300Ω	4	145123		RTV-94		Focus Control - Wire Wound
R3A	1000Ω	2	145140				Contrast Control - Wire Wound - Panel
B	100KΩ	½					Brightness Control - Rear
				Concentrikit			
R4A	50KΩ	½	[illegible]	Bll-123 *	RTV-75		Horiz. Hold Control - Panel
B	2Meg			Bll-139 *			Vert. Hold Control - Rear
C	Shaft End		Not Req.	E187 *	Not Req.		Attach per instructions in Concentrikit
R5A	10KΩ	½	145132	Q11-116	AQ-27-S	AN-14	Horiz. Drive Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	6 Meg	½	145100		AM-85-S		Vert. Size Control
B	Shaft		Not Req.		FKS-1/4		Attach to R6A per instructions
R7A	5000Ω	½	145079	Q11-114	AG-19-S	AN-10	Vert. Linearity Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to R7A per instructions

* Additional Parts to be used with Concentrikit

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stromberg Carlson PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R8	22KΩ 20%	½	149109		RF Amp. Grid
R9	1000Ω	½	28158	BTS-1000	AGC Network
R10	22KΩ 20%	½	149109		RF Amp. Screen
R11	2700Ω	½	28183	BTS-2700	RF Amp. Plate Decoupling
R12	220Ω	½	149097	BTS-220	Decoupling
R13	4700Ω 20%	2	149080	BTB-4700	Decoupling
R14	47KΩ 10%	½	149111		Mixer Grid
R15	350KΩ	½	28186	BTS-390K	Mixer Grid
R16	22KΩ	½	149364		Osc. Grid
R17	1500Ω	½	28180	BTS-1500	Osc. Plate
R18	470Ω	½	28154	BTS-470	Osc. Plate Decoupling
R19	10KΩ	½	149107	BTS-10K	Mixer Plate
R20	470Ω	½	28154	BTS-470	Mixer Plate Decoupling
R21	100Ω 20%	½	149095	BTS-100	Decoupling
R22	1000Ω 20%	½	149101	BTS-1000	AGC Network
R23	15KΩ	½	33912	1 3/4A-15K	Voltage Divider - Wire Wound - See Note 1
R24	68Ω 20%	½	28144		1st. Video IF Amp. Cathode
R25	220Ω 20%	½	149097	BTS-220	1st. Video IF Amp. Decoupling
R26	4700Ω	½	28186	BTS-4700	2nd. Video IF Coil Shunt
R27	1000Ω 20%	½	149101	BTS-1000	AGC Network
R28	68Ω 20%	½	28144		2nd. Video IF Amp. Cathode
R29	220Ω 20%	½	149097	BTS-220	2nd. Video IF Amp. Decoupling
R30	18KΩ	½	28173		3rd. Video IF Coil Shunt
R31	68Ω 20%	½	28144		3rd. Video IF Amp. Cathode
R32	10KΩ	½	28170		4th. Video IF Coil Shunt
R33	180Ω	½	28149	BTS-180	4th. Video IF Amp. Cathode
R34	220Ω 20%	½	149097	BTS-220	4th. Video IF Amp. Screen
R36	68000Ω 30%	½	149106		5th. Video IF Coil Shunt

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROMBERG CARLSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R36	1500Ω	½	149102	BTS-1500	Video Det. Diode Load
R37	3900Ω	½	28165	BTS-3900	Video Amp. Grid
R38	3900Ω	½	28165	BTS-3900	Video Amp. Plate
R39	470KΩ 20%	½	149117	BTS-470K	Video Output Grid
R40	18Ω 20%	½	28149	BTS-180	Video Output Cathode
R41	15KΩ	5	33912	1 3/4A-15K	Voltage Divider - wire Wound
R42	2000Ω	7	149411	1 3/4A-2000	Video Output Plate - Wire Wound
R43	68Ω	½	28144		Parasitic Suppressor
R44	1Meg 20%	½	149119	BTS-1Meg	Picture Tube Grid
R45	22KΩ	½	149364	BTS-22K	Picture Tube Cathode
R46	270KΩ	½	28184	BTS-270K	Picture Tube Cathode
R47	10KΩ	½	149107	BTS-10K	Vert. Blanking Network
R48	1Meg 20%	½	149119	BTS-1Meg	Filter
R49	1800Ω	½	28161	BTS-1800	1st Sound IF Amp. Cathode
R50	15KΩ 20%	½	149108		2nd Sound IF Amp. Grid
R51	150Ω	½	149096	BTS-150	2nd Sound IF Amp. Cathode
R52	1800Ω	½	28161	BTS-1800	1st Sound IF Amp. Plate
R53	10KΩ	1	149144		Voltage Divider
R54	220Ω 20%	½	149097	BTS-220	Balancing
R55	18KΩ	½	28173	BTS-18K	De-emphasis
R56	33KΩ 20%	½	149110	BTS-33K	Ratio Det. Diode Load
R57	10Meg 20%	½	149125	BTS-10Meg	AF Amp. Grid
R58	470KΩ 20%	½	149117	BTS-470K	AF Amp. Plate
R59	470KΩ 20%	½	149117	BTS-470K	Output Grid
R60	270Ω	1	149170	BTA-270	Output Cathode
R61	1Meg 20%	½	149119	BTS-1Meg	Blanking Amp. Grid
R62	100KΩ 20%	½	149113	BTS-100K	Blanking Amp. Cathode
R63	100KΩ	½	149113	BTS-100K	Noise Limiter Cathode
R64	18KΩ	½	28173	BTS-18K	Noise Limiter Grid
R65	47000Ω 20%	½	149105	BTS-4700	Noise Limiter Plate
R66	33KΩ 20%	½	149110	BTS-33K	Noise Limiter Plate
R67	18KΩ	½	28173	BTS-18K	Sync. Separator Load
R68	22KΩ 20%	½	149109	BTS-22K	Keyed AGC Grid
R69	470KΩ 20%	½	149117	BTS-470K	Isolation
R70	47KΩ 20%	½	149111	BTS-47K	AGC Network
R71	47KΩ	½	149111	BTS-47K	AGC Network
R72	220KΩ 20%	½	149115	BTS-220K	Voltage Divider
R73	470KΩ 20%	½	149117	BTS-470K	Isolation
R74	1Meg 20%	½	149119	BTS-1Meg	Voltage Divider
R75	150KΩ	½	149114	BTS-150K	Sync. Clipper Plate
R76	33KΩ 20%	½	149110	BTS-33K	Voltage Divider
R77	2200Ω	½	28162	BTS-2200	Phase Inverter Cathode
R78	2.2Meg	½	149121	BTS-2.2Meg	Phase Inverter Grid
R79	1000Ω	½	28158	BTS-1000	Phase Inverter Plate
R80	2200Ω	½	28162	BTS-2200	Phase Inverter Plate
R81A	22KΩ	½		BTS-22K	Integrator Network
B	6200Ω	½	#138200	BTS-8200	Integrator Network
C	8200Ω	½		BTS-8200	Integrator Network
R82	68000Ω 20%	½	149118	BTS-680K	Vert. Osc. Grid
R83	1.8Meg	½	28194	BTS-1.8Meg	Vert. Osc. Plate
R84	6800Ω	½	28166	BTS-6800	Vert. Peaking - See note 2.
R85	470Ω 20%	1	149136	BTA-470	Vert. Output Cathode
R86	2.2Meg 20%	½	149121	BTS-2.2Meg	Vert. Output Grid
R87	180KΩ	½	28183	BTS-180K	Vert. Osc. Decoupling
R88	2200Ω	2	149078	BTB-2200	Vert. Output Decoupling
R89	2300Ω 20%	2	149078	BTB-2300	Vert. Output Decoupling
R90	270KΩ	½	28184	BTS-270K	Bleeder
R91	270KΩ	½	28184	BTS-270K	Bleeder
R92	100KΩ	½	149385	BTS-100K	Horiz. Phase Det. Diode Load
R93	100KΩ	½	149385	BTS-100K	Horiz. Phase Det. Diode Load
R94	33KΩ 20%	½	149110	BTS-33K	Horiz. Phase Det. Diode Load
R95	470K 20%	½	149117	BTS-470K	Horiz. AFC Filter
R96	680K 20%	½	149118	BTS-680K	Voltage Divider
R97	4.7Meg 20%	½	149123	BTS-4.7Meg	Horiz. MV Grid
R98	5600Ω	½	149184	BTA-5600	Horiz. MV Plate
R99	15000Ω	½	149102	BTS-1500	Horiz. MV Cathode
R100	2200Ω 20%	½	28182	BTS-2200	Decoupling
R101	220KΩ 20%	½	149115	BTS-220K	Horiz. MV Grid
R102	82KΩ	½	28180	BTS-82K	Horiz. MV Plate
R103	5600Ω	½	28187	BTS-5600	Horiz. Peaking
R104	68Ω	½	28144		Parasitic Suppressor
R105	470KΩ 20%	½	149117	BTS-470K	Horiz. Output Grid
R106	100Ω 20%	3	149070	BW-2-100	Horiz. Output Cathode
R107	100Ω 20%	3	149095		Parasitic Suppressor
R108	15KΩ	5	33912	1 3/4A-15K	Horiz. Output Screen - Wire Wound
R109	33KΩ	½	149110	BTS-33K	Feedback Network See Note 3
R110	10KΩ	1	149402	BTA-10K	Feedback Network
R111	10KΩ	1	149402	BTA-10K	Feedback Network
R112	3.3Ω	1	149314		HV Rectifier Filament - Wire Wound
R113	47Ω 20%	3	149068		Focus Coil Shunt
R114	3000Ω	20	149377	2D-3000	Filter - Wire Wound
R115	470Ω 20%	3	149074	BTB-470	Filter - Wire Wound
R116	68KΩ 20%	½		BTS-68K	Voltage Divider See note 3.

Note 1. Some models use a 12KΩ resistor in this application. (Part #149335)
Note 2. Some models use a 47000 resistor in this application. (Part #28186)
Note 3. Not used in all models.
◆ Items R81A, R81B, R81C, C74A, C74B, C74C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Stromberg Carlson PART No.	REPLACEMENT DATA: STANCOR PART No	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC	820VCT	5VAC	6.3VAC	161429			
	@3.4A	.290ADC	@ 6A	@9A				
			SEC. 4	SEC. 5				
			6.3VAC	6.3VAC				
			@1.2A	@ 6A				

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA Stromberg Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	170Ω	950Ω	114658 161254 ①	A-8122	A-4003	TB0-2	Vert. Oscillator Trans.
T3	560Ω Tapped @16Ω	18.5Ω Tapped @1.7Ω 5.6Ω & 15Ω SEC.2 0Ω	161042				Hor. Output Trans.
T4	1200Ω Tapped @12Ω		161255	A-8123	A-3037	TS0-5 ②	Vert. Output Trans.
T5A	27.5Ω		114706	DY-9	MDF-70		Hor. Deflection Coils
B	46Ω						Vert. Deflection Coils
T6	85Ω		114111				Focus Coil

① Alternate Transformer
② Drill One New Mounting Hole

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA Stromberg Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	6.5KΩ	4.3Ω	430Ω	.3Ω	161256	A-3849	A-3019	RO-307	

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA Stromberg Carlson PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1A	P.M.	4.3Ω	155198 155189 ③ 155154 ④	12J12	12A1A	③ Includes Output Trans., Cable & Plug ④ Alternate Speaker
	CONE DIA.	V. C. DIA.				
SP1B	12"	1"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA Stromberg Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.290ADC	60Ω	2.2Henries	161030	C-2326 ②	C-2996	TR-3300 ②	② Drill One New Mounting Hole

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA Stromberg-Carlson PART No.	MERIT PART No.	IRC PART No.	NOTES
L2	Ant. Trans.	0Ω		171153			
L3	Fil. Choke	0Ω		171116			
L4	RF Coil	0Ω		171150			
L5	Mixer Grid Coil	0Ω		171152			
L6	Osc. Coil	0Ω		171151			
L7	Fil. Choke	0Ω		171116			
L8	RF Choke	0Ω		171117			
L9	RF Choke	.2Ω		171118			
L10	Conv. Plate Coil	.3Ω		171123			
L11	Fil. Choke	.14Ω		114707		CL-1	.47Microhenries
L12	1st Video IF	.1Ω	.4Ω	114104	TV-100		
L13	2nd Video IF	1Ω	1Ω	114397			Includes 21.6MC IF Trap
L14	3rd Video IF	1Ω	1Ω	114397			Includes 21.9MC Sound Trap
L15	4th Video IF	.3Ω	.3Ω	114406			Includes 27.9MC Adj. Sound Trap
L16	5th Video IF	1.2Ω	1.2Ω	114407			
L17	Peaking Coil	6.8Ω		114657			
L18	Peaking Coil	8.5Ω		114709	TV-184		
L19	Peaking Coil	7.5Ω		114638	*TV-181		Wound on 15KΩ resistor
L20	Peaking Coil	14.2Ω		114716	TV-188		
L21	4.5MC Trap	1.7Ω		114383	TV-151		
L22	Peaking Coil	8.5Ω		114709			
L23	1st Sound IF	3.3Ω		114400			
L24	2nd Sound IF	3.3Ω		114400			
L25	Ratio Det. Trans.	4.8Ω	.7Ω	114375			Tap @ 1Ω
L26	Horiz. Osc.	95Ω		114069	TV-163		
L27	RF Choke	1.8Ω		114693		CLA	2.2Microhenries
L28A	Horiz. Size	1.4Ω		114087	MWC-2		
B	Horiz. Size			114083			Alternate Horiz. Size Coil
L29	Horiz. Lin.	5.8Ω		114084			Tap @ 1.6Ω

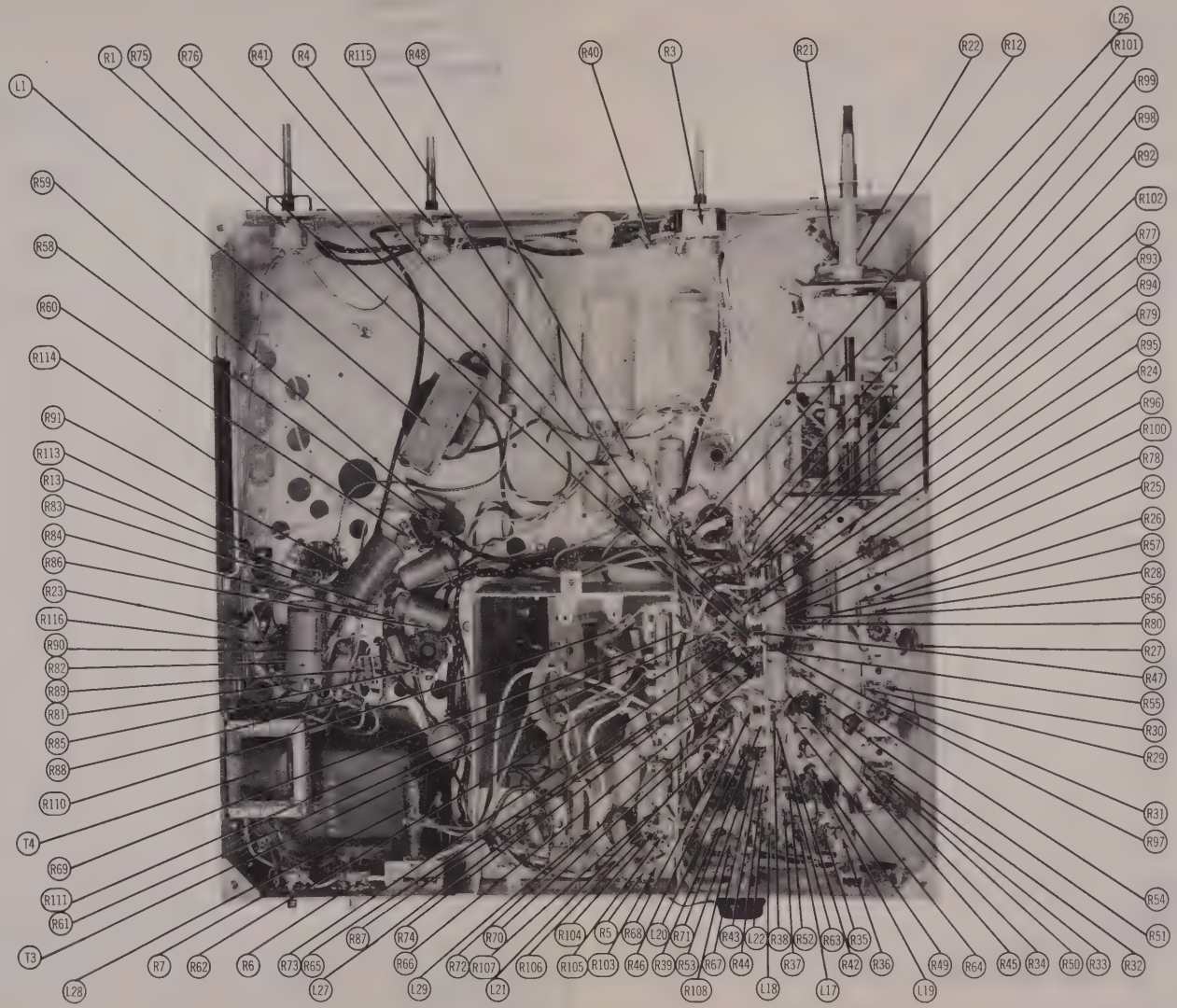
* Parallel with 15KΩ resistor.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Stromberg-Carlson PART No. FUSE	Stromberg-Carlson PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	REMARKS
M1	3AG Slo-Blo	5A	128007	128008	313005	342001	
M2	3AG Pigtail	1/4A 250V	128000		318.250		

MISCELLANEOUS

ITEM No.	PART NAME	Stromberg Carlson PART No.	NOTES
M3	RF Tuner	164017-2	
M4	Crystal	162157	IN64
M5	Crystal	162094	IN 65
M6	Switch	158037	TV-Phono
M7	Ion Trap	114645	
B1	Trimmer	110043	Horiz. Freq. Control (70-470MMF)
	Knob	134164	Channel Selector
	Knob	134165	Fine Tuning
	Knob	134169	Off/On Volume
	Knob	134167	Contrast, Horiz. Hold
	Knob	134166	Brightness, Vert. Hold



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PROPERTY OF
L. F. ELANDER
3974 MEADE
DENVER, COLORADO

SYLVANIA
MODEL 430L (Ch. 1-254)

SYLVANIA
MODEL 430L (Ch. 1-254)

TRADE NAME	Sylvania Model 430L (Ch. 1-254)
MANUFACTURER	Sylvania Elect. Prod., Inc., Radio & Tel. Div., 1292 Niagara St., Buffalo, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC/DC or 7.5Volts "A" Supply & 90 Volts "B" Supply
RATING	.14Amp. @ 117 Volts AC or 50MA @ 7.5 Volts DC & 17MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.25MFD	High side to pin 6, (grid) of 1R5, (V1). Low side to chassis.	455KC (400∿mod)	Tuning gang fully closed.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to reduce hum modulation.
2.		Loop	1650KC	Tuning gang fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	Tune for max. output.	"	A6	"

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

SYLVANIA MODEL 430L

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det. -AVC-AF Amp.	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	161-3009	PRS150/40-40		EDL4415		TVL-2428	Filter
B	40	150		PRS15/250		BRH1525A		TVA-1161	Decoupling
C	200	15							Fil. Filter
C2	.05	200	162-0215	P288-05	DF-503	PJ2S5		2TM-S5	AVC Filter
C3	.01	400	162-0411	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	IF Amp. Grid Filter
C4	.05	400	162-0415	P488-05	DF-503	PTE4S5		4TM-S5	IF Amp. Screen Bypass
C5	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Diode RF Filter
C6	.002	400	162-0622	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Audio Coupling
C7	.01	400	162-0411	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AF Amp. Screen Bypass
C8	100	500	163-0100	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	AF Amp. Plate Bypass
C9	.002	400	162-0622	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Audio Coupling
C10	.005	200	162-0425	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Output Plate
C11	.25	200		P488-25		PJ2P25		2TM-P25	Fil. Bypass †
C12	.05	200	162-0415	P288-05	DF-503	PJ2S5		2TM-S5	Fil. Bypass
C13	.05	400	162-0415	489ZGXY-05		PJ4S5		4TM-S5	Line Filter
C14	.2	400	162-0402	P488-22		PTE4P22		4TM-P22	Line Isolation

† Some models use a .2MFD in this application (Part No. 162-0402)

CONTROLS

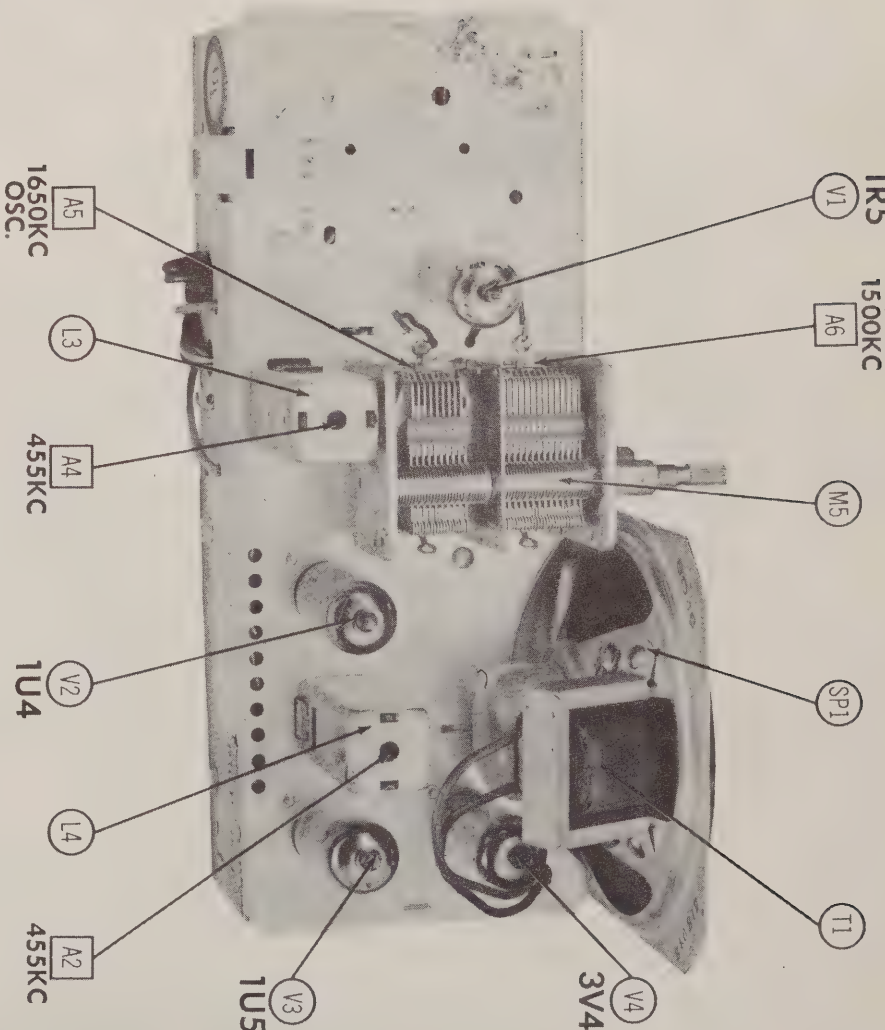
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	152-0009	Q13-137	AG-63-Z	BSK-70-S	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions.
C	Switch		Not Req.	76-2	SWB-2	Not Req.	Attach to R1A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½	182-0104		Osc. Grid
R3	3.3Meg	½	181-0335	BTS-3.3Meg	IF Amp. Grid
R4	8200Ω	½	181-0822		IF Amp. Screen
R5	2.2Meg	½	181-0225	BTS-2.2Meg	AVC Network
R6	10Meg	½	181-0106	BTS-10Meg	AF Amp. Grid
R7	4.7Meg	½	181-0475	BTS-4.7Meg	AF Amp. Screen
R8	220KΩ	½	181-0224	BTS-220K	AF Amp. Plate
R9	1Meg	½	181-0105	BTS-1Meg	Output Plate
R10	47Ω	1	182-0470		Surge Limiter - Wire Wound
R11	2200Ω	5		1 3/4A-2250	Filament Dropping - Wire Wound - See note 1.
R12	82KΩ	½		BTS-82K	Filament Dropping - See note 2.
R13	82KΩ	½		BTS-82K	Filament Dropping - See note 2.
R14	2700Ω	1	182-0272	BTA-2700	Filter
R15	1500Ω	½	181-0152	BTS-1500	Filament String
R16	1000Ω	½	181-0102	BTS-1000	Filament String
R17	1000Ω	½	181-0102	BTS-1000	Filament String

Note 1. Some models use a 2700Ω resistor in this application.
Note 2. Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	9KΩ	3.5Ω	540Ω	.4Ω	143-0015	A-3329	A-2927 ①		① Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	SYLVANIA PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3.5Ω	539-0400	ST-113 Mod. P4-X	4A1	
	CONE DIA.	V. C. DIA.				
SP1B	4"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	SYLVANIA PART No.	MERIT PART No.	
L1	Loop Ant.	2.8Ω		581-0001		
L2	Osc. Coil	.9Ω	6.2Ω	113-0017		
L3	Input IF	24Ω	24Ω	121-0100		
L4	Output IF	24Ω	24Ω	121-0100		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT	SYLVANIA PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	
M1	.064A	517-0002	NB-5	5M4	1003A	

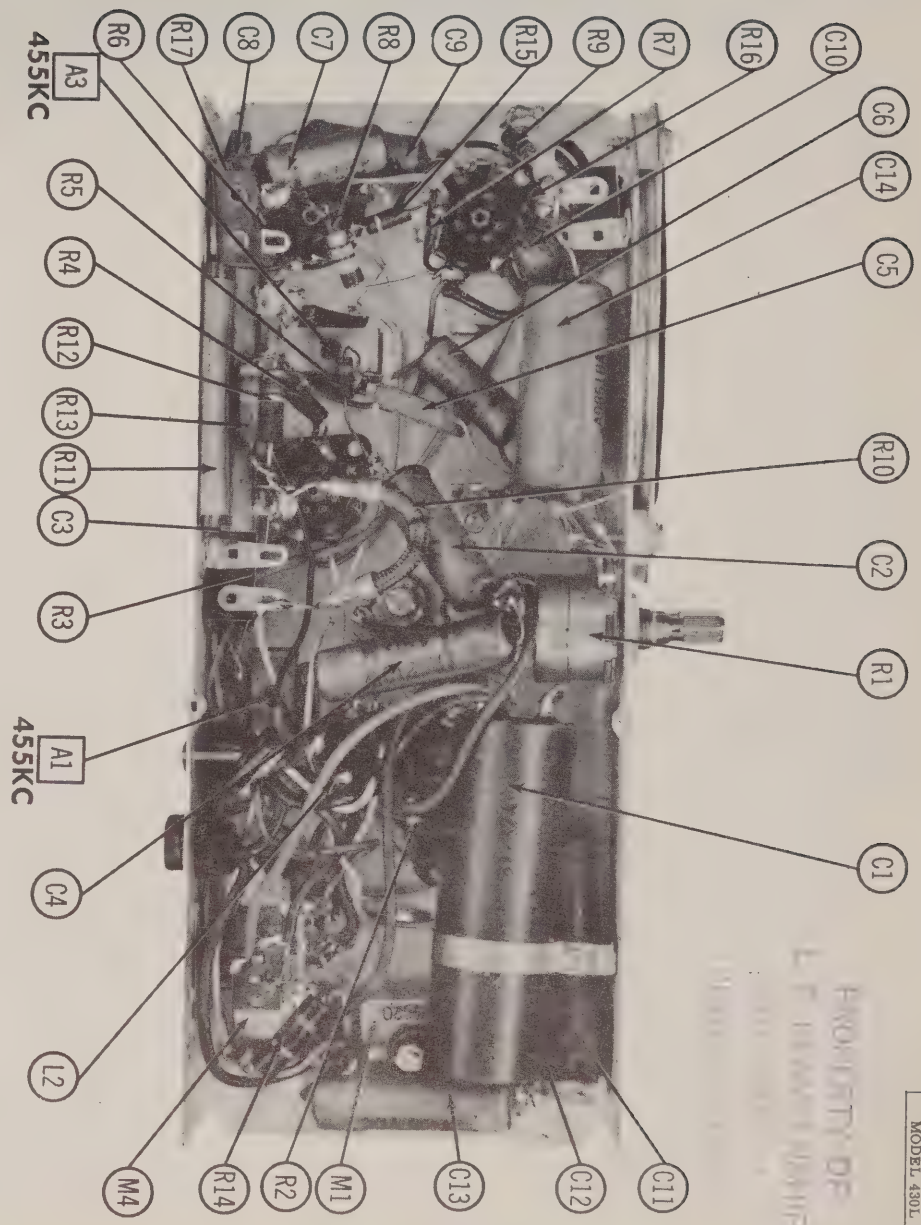
BATTERIES

ITEM No.	VOLTAGE	SYLVANIA PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	7.5V		717			C5			
M3	90V			490			N60		

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M4	Switch	573-0002	Power Change - Over
M5	2 Gang Var. Cap.	170-0003	(19-462MMF, 32-202MMF)
	Cabinet	814-0001	
	Dial	722-0016	
	Knob	740-0009	Dial
	Knob	740-0010	Volume/On-Off

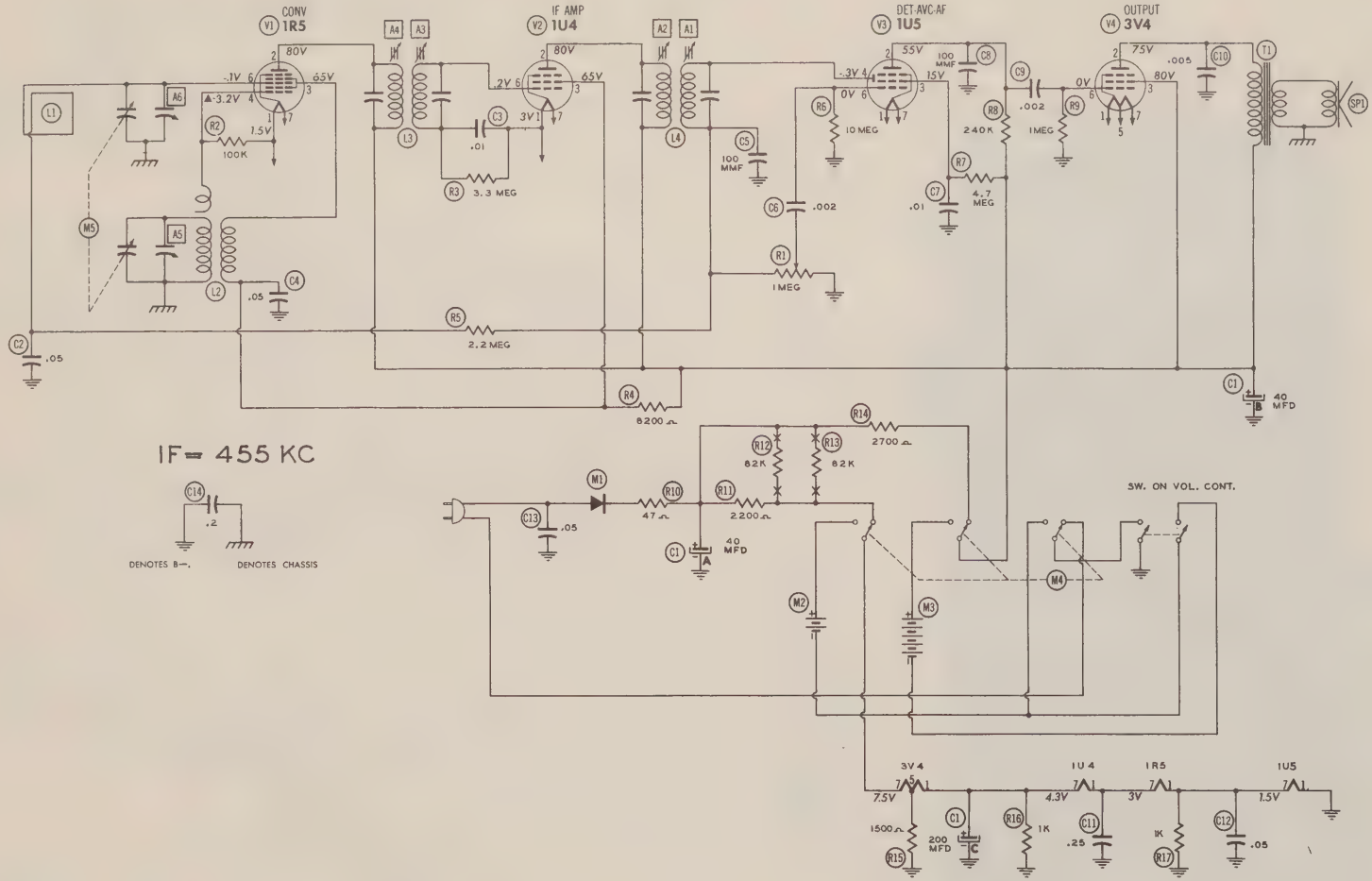
CHASSIS—BOTTOM VIEW



SET 165 FOLDER 15

SYLVANIA MODEL 430L

SYLVANIA MODEL 430L



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†2.7KΩ	†11KΩ	100KΩ	*	3.2Meg	*
V 2	1U4	*	†2.7KΩ	†11KΩ	3.2Meg	*	3.3Meg	*
V 3	1U5	*	†240KΩ	†4.7Meg	1Meg	0Ω	10Meg	*
V 4	3V4	*	†3.2KΩ	†2.7KΩ	INF	*	1Meg	*

† MEASURED FROM OUTPUT OF M1.
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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165-15

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

V-M
MODEL 975

V-M
MODEL 975

TRADE NAME	V-M Model 975	
MANUFACTURER	V-M Corp., Benton Harbor, Mich.	
TYPE SET	AC Operated Audio Amplifier with 3 Speed Automatic Record Changer	
TUBES (THREE)	Types 12AV6 or 12AT6 AF Amp., 50C5 Audio Output, 35W4 Rectifier	
POWER SUPPLY	110-120 Volts AC	RATING .23 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON V-M MODEL 950 RECORD CHANGER UNIT - SEE PHOTOFACT SET 107- FOLDER 13, OR RECORD CHANGER MANUAL CM-3.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		V-M PART No.	STANDARD REPLACEMENT		
V1A	AF Amplifier	12AV6	12AV6	7BT	
B	AF Amplifier	12AT6	12AT6	7BT	
V2	Audio Output	50C5	50C5	7CV	
V3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	V-M PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150	1010A	AFH4-28		EZ44315C		TVL-4420	Filter (Red)
B	40	150							Filter (Red)
C	20	150							Decoupling (Yellow)
D	20	25							Output Cathode (Blue)
C2	10000			SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	Audio Coupling †
C3	10000		814 ‡	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	Audio Coupling ‡
C4	10000		825	SI10000	D6-103	TM5S1	GP2-333-103	5HK-S1	Tone Comp.
C5	.1	200		P288-1	DF-104	PJ2P1		2TM-P1	Line Isolation ¶

† Items C2 and R4 are combined in one unit.
‡ Items C3 and R5 are combined in one unit.
¶ Some models use .05MFD in this application. (Part No. 803)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	V-M PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	401	Q13-133	AG-60-Z	AN-60	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R1A per instructions.
C	Switch		Not Req.	76-1	SWB	K-155	Attach to R1A per instructions.
R2A	500KΩ	½	403	Q13-133	AG-60-Z	AN-60	Tone Control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R2A per instructions.

RESISTORS

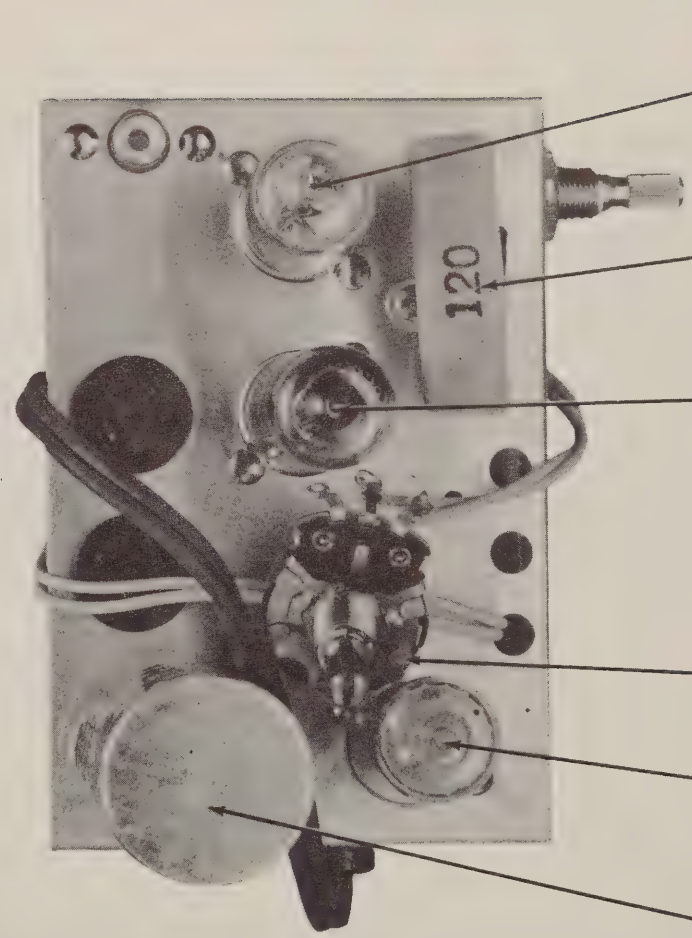
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	V-M PART No.	IRC PART No.	
R3	470KΩ	½	502	BTS-470K	Series Phono - See note 1.
R4	5Meg	½	†	BTS-5Meg	AF Amp. Grid
R5	100KΩ	½	‡814	BTS-100K	AF Amp. Plate
R6	1Meg	½	516	BTS-1Meg	Feedback
R7	470KΩ	½	502	BTS-470K	Output Grid - See note 1.
R8	150Ω	½	505	BTS-150	Output Cathode
R9	1000Ω	½	539	BTS-1000	Filter
R10	270Ω	1	602		Filter
R11	30Ω	½	534		Rectifier Ballast
R12	120Ω	7.5	601	1 3/4A-125	Series Filament - Wire Wound

Note 1. Some models usea a 510KΩ resistor in this application.
† Items R4 and C2 are combined in one unit.
‡ Items R5 and C3 are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		V-M PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	1.6KΩ	3.3Ω	125Ω	.3Ω	Part of 2601	A-3332 ①	A-3025 ①		① Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	V-M PART No.	VIKING PART No.	QUAM PART No.	
SP1A	P.M.	3.3Ω	2601	46J6	46A1	
	CONE DIA.	V. C. DIA.				
SP1B	6" X 4"	9/16"				

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	V-M PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		ACD-J	A-1 A-3	W22AB	A62A A65MG	96-T	0-1 or S-1 and 0-3 or S-3	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

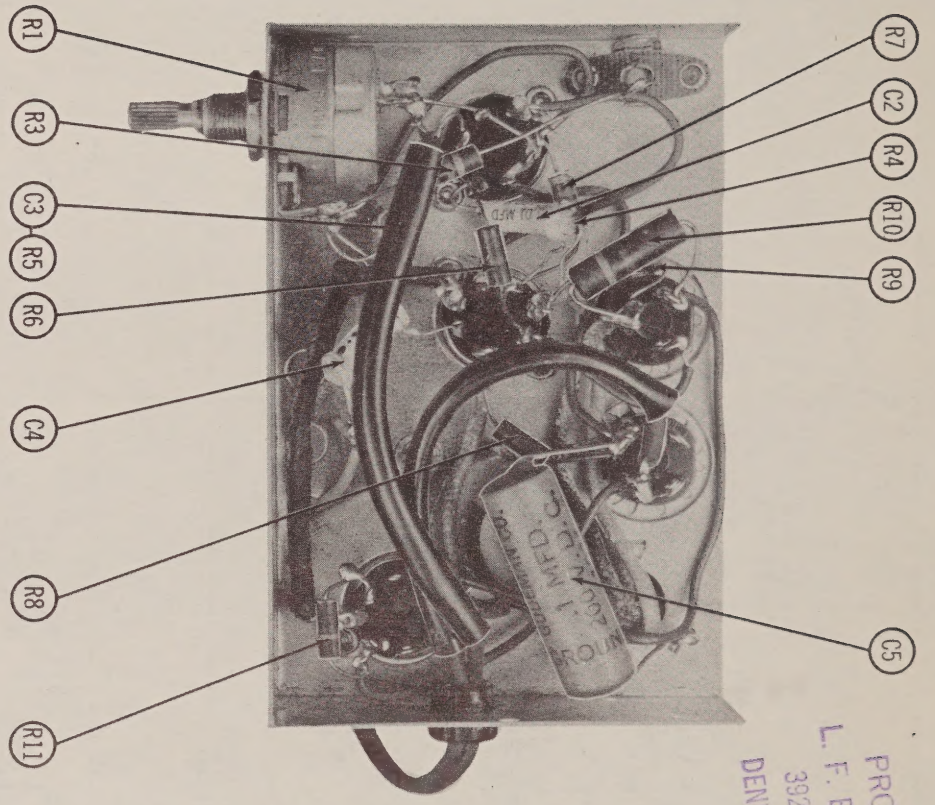
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	V-M PART No.	WALCO PART No.	JENSEN PART No.	
M2		W-30A and W-30MGS	JP-30 and JPS-30LP	

MISCELLANEOUS

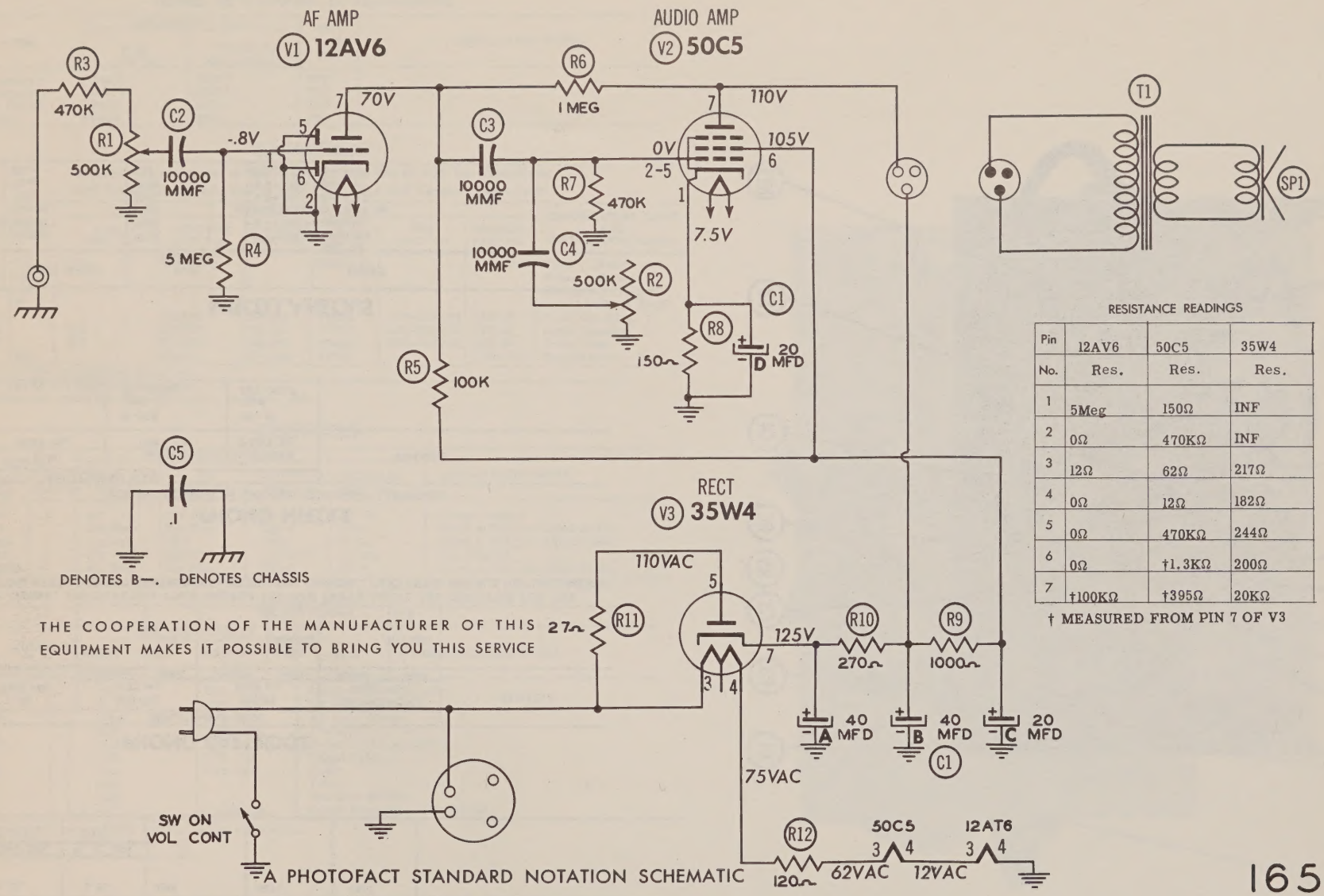
ITEM No.	PART NAME	V-M PART No.	NOTES
	Socket	107A	4 Prong - Motor AC
	Socket	106B	3 Prong - Sleaker
	Socket	104A	Single Prong - Pick up
	Plug	307C	4 Prong - Motor AC
	Plug	307B	3 Prong - Speaker
	Plug	305	Single Prong - Pick up

CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

V-M MODEL 975



RESISTANCE READINGS

Pin No.	12AV6 Res.	50C5 Res.	35W4 Res.
1	5Meg	150Ω	INF
2	0Ω	470KΩ	INF
3	12Ω	62Ω	217Ω
4	0Ω	12Ω	182Ω
5	0Ω	470KΩ	244Ω
6	0Ω	†1.3KΩ	200Ω
7	†100KΩ	†395Ω	20KΩ

† MEASURED FROM PIN 7 OF V3

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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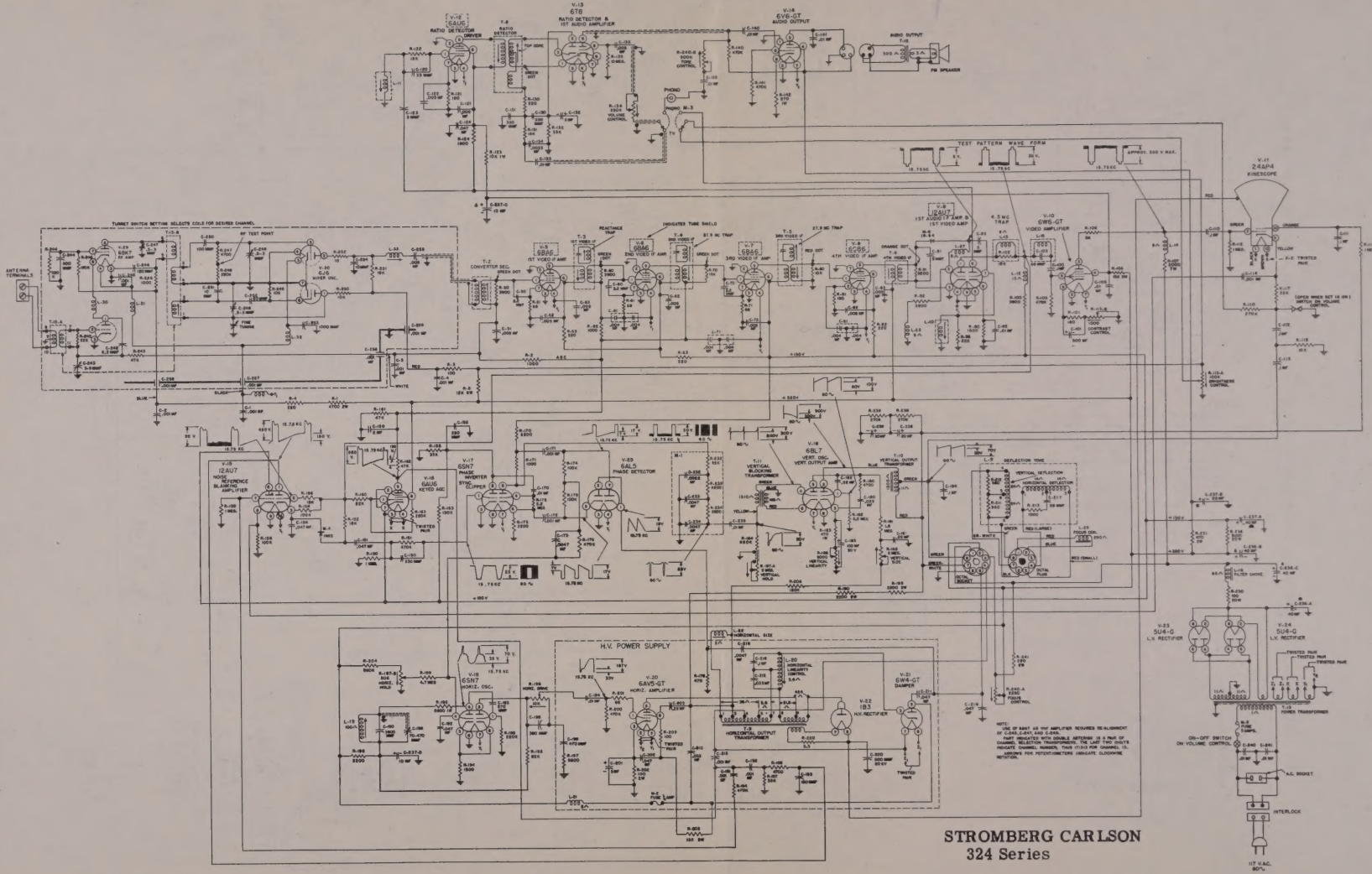
165-16

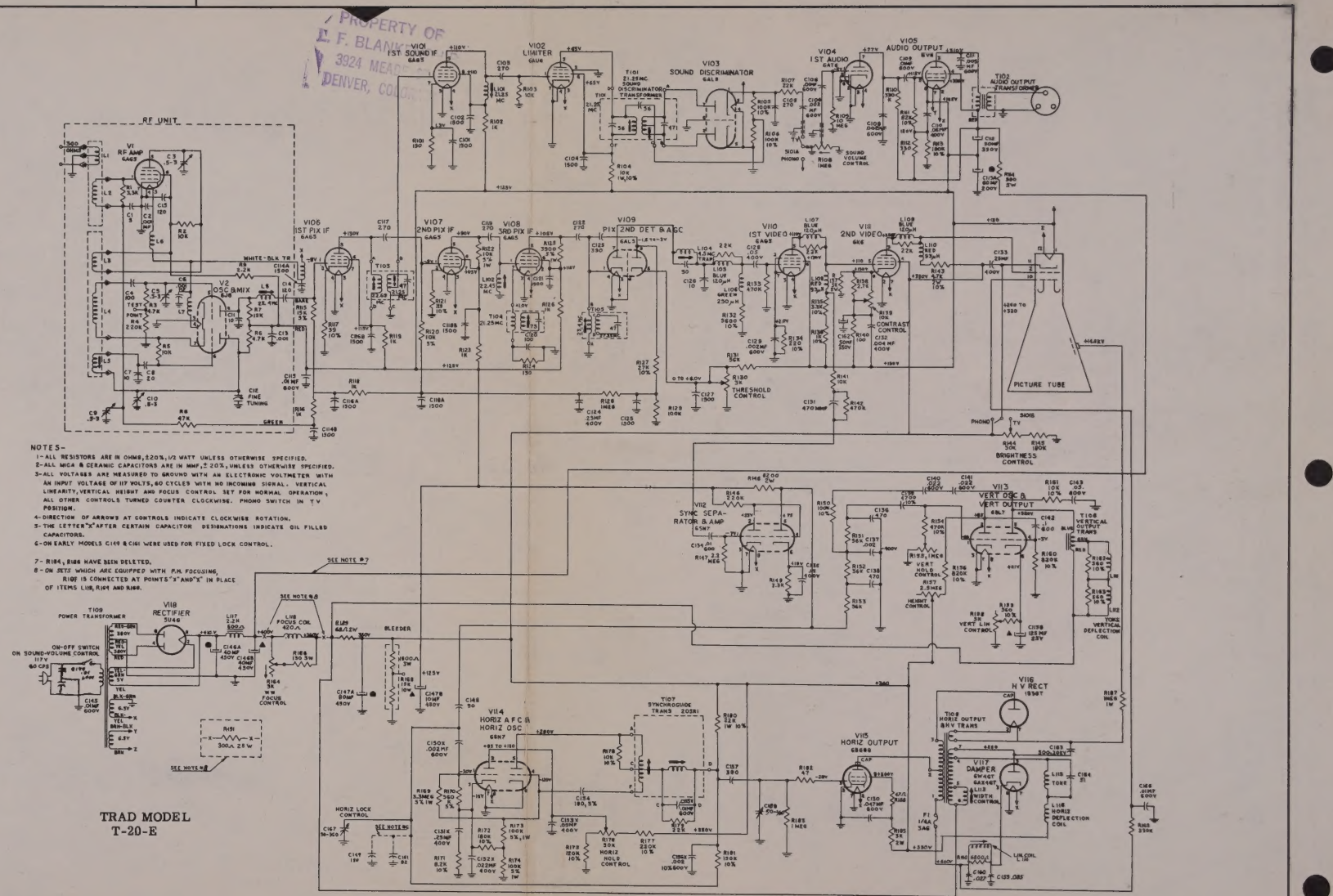
1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltage measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

The Cooperation of the Manufacturer of This Schematic Makes It Possible to Bring You This Service



PROPERTY OF
E. F. BLANK
3924 MEAD
DENVER, COLO.

The Cooperation of the Manufacturer of This Schematic Makes It Possible to Bring You This Service.



NOTES-

1- ALL RESISTORS ARE IN OHMS, ±20%, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
2- ALL MICA & CERAMIC CAPACITORS ARE IN MMF, ± 20%, UNLESS OTHERWISE SPECIFIED.
3- ALL VOLTAGES ARE MEASURED TO GROUND WITH AN ELECTRONIC VOLTMETER WITH AN INPUT VOLTAGE OF 117 VOLTS, 60 CYCLES WITH NO INCOMING SIGNAL. VERTICAL LINEARITY, VERTICAL HEIGHT AND FOCUS CONTROL SET FOR NORMAL OPERATION; ALL OTHER CONTROLS TURNED COUNTER CLOCKWISE. PHONO SWITCH IN TV POSITION.
4- DIRECTION OF ARROWS AT CONTROLS INDICATE CLOCKWISE ROTATION.
5- THE LETTER "X" AFTER CERTAIN CAPACITOR DESIGNATIONS INDICATE OIL FILLED CAPACITORS.
6- ON EARLY MODELS C149 & C161 WERE USED FOR FIXED LOCK CONTROL.
7- R184, R186 HAVE BEEN DELETED.
8- ON SETS WHICH ARE EQUIPPED WITH P.M. FOCUSING, R187 IS CONNECTED AT POINTS "X" AND "X" IN PLACE OF ITEMS L118, R184 AND R186.

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